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## A VINDICATION OF JAPAN'S COMMERCIAL HONOR

By GEORGE BRONSON REA

## THE FOREIGN POLICY OF NATIONALIST CHINA

By GEORGE E. SOKOLSKY

## CEMENT IN CHINA

By B. P. TORGASHEFF

## BRITISH POLICY IN CHINA

Vol. XXIV December, 1928 No. 12

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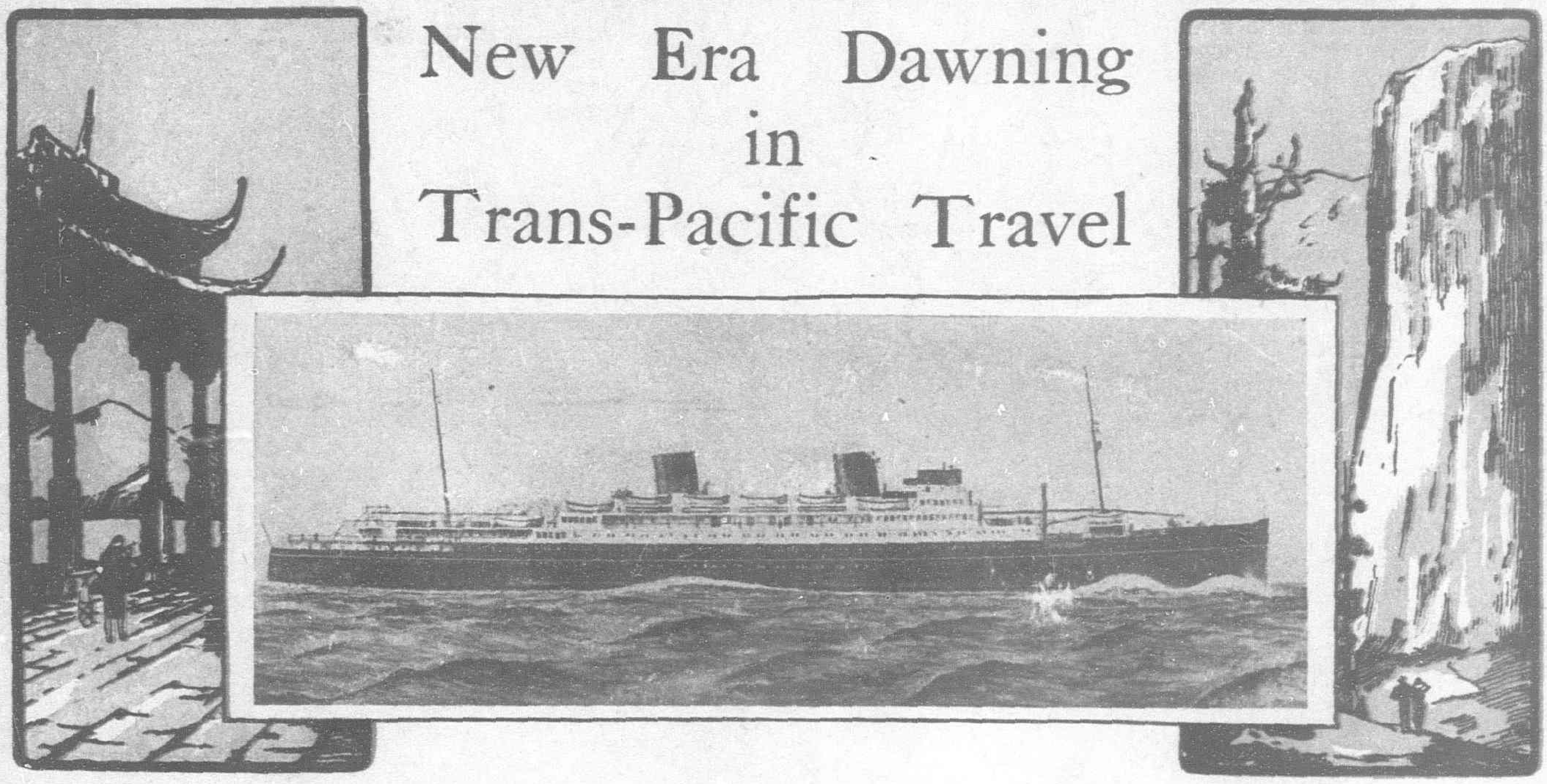

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The Far Eastern Review
ENGINEERING FINANCE COMMERCE
VOL. XXIV SHANGHAI, DECEMBER, 1928 No. 12

# The Foreign Policy of Nationalist China

*By George E. Sokolsky*

THE capture of Peking by the Nationalists provided, at any rate, the appearance of the unification of China under a single central Government. More than an appearance of such an achievement could not have been expected, for the enormous size of China, the lack of communications and the chaotic system of financing of both central and provincial Governments made it impossible for any single group to disband the troops, end feudalism, create a national defence force and enter fully upon the much-heralded era of national reconstruction. Nevertheless, the mere appearance of unification was accepted by the Chinese people and the Powers as a satisfactory development, for it was undoubtedly an improvement upon the confusion and hopelessness of the previous decade.

All eyes were immediately turned upon the problem of foreign relations. The new Minister of Foreign Affairs, Dr. C. T. Wang, had an advantage in that, at the moment of appointment, he enjoyed the confidence of General Chiang Kai-shek and was popular with that element in the Kuomintang which supported an extremist foreign policy. His predecessor had been regarded as pro-Japanese, while Dr. Wang had given evidence of a critical attitude toward Japanese policy. Furthermore, it was Dr. C. T. Wang who had, as Chairman of the Chinese delegation at the Tariff Conference, won for China diplomatic victories, the utilization of which had been interrupted by civil wars. The radical elements in the Kuomintang hoped then that Dr. Wang would follow a radical policy, that he would emulate the example of Mr. Eugene Chen, whose policy had resulted in bringing to China a huge foreign army and navy for the purpose of protecting life and property, while he and his closest supporters took refuge from a disgusted and irate people in the shadow of the Kremlin in Moscow. The radicals then thought that Dr. Wang would follow the policy of Mr. Chen, they, the radicals, being forgetful of the disastrous effects of such a policy upon the fortunes of their country.

For some months, it was exceedingly difficult to orientate a foreign policy. The presence of Japanese troops in Shantung, the unwillingness of Manchuria to recognize the Nanking Government, the Moslem uprising in Kansu, the famine in nine northern provinces, the dissensions between Right and Left Wing in the Kuomintang, the financial independence of all but five provinces and the incomplete subordination of most of those provinces, the constant possibility of civil war, militated against an immediate support of Nanking by the Powers. But even a greater impediment to the establishment of friendly relations between the new Government and the foreign Powers was the curious form of Government evolved in Nanking out of the wreckage of the Soviet system of Government established in the Canton days by Comrade Borodin. In the Nanking Government, a system of committees and councils had come into existence which produced the anomaly that those who were loaded down with responsibility possessed no power, while those who held the actual authority of the state assumed no responsibility for the actions of the Government. This gave rise to a situation in which a Minister of state found himself wandering through what appeared to be a hopeless maze of intrigue among invisible party leaders—committee men and council men who could complain and quarrel and prevent action while China was losing valuable time—time which might never be regained if once some general sent his hordes marching again in a civil war.

Dr. C. T. Wang

In the face of these odds, the Minister of Foreign Affairs sought to evolve a foreign policy *which had chances of success.* It would be a simple problem for China to work out a grandiose foreign policy which might bring to its author overwhelming glory but which would bring upon China only disappointment and disaster. Such was the policy of Mr. Eugene Chen, which regained for China Hankow and brought to Shanghai the Shanghai Defence Force. It is a simple matter to demand a full and immediate revision of all treaties on the basis of international justice and end by getting nothing. The young men who write essays for party newspapers and who compose slogans can easily produce the most ideal program of international relations for China, but they cannot conceive anything which may approach the realm of practical politics. For what China requires first and foremost, is *time* to work out her internal problems ; then, the Central Government must have access to ample *revenues*, to make possible national stabilization without the necessity for a constant conflict with the provinces and local governments over the question of revenue. Finally, the Government requires *good-will* and *credit* abroad, so that loans can be made in foreign markets for the reconstruction of the physical life of the state, for the building of roads and railways, the improvement of waterways, for the demobilization of the army, for the re-employment of demobilized troops, for the establishment of a national gendarmerie, for the stabilization of currency, etc. The Foreign Minister then was faced with a practical problem, not a theory.

The foreign policy of China then had to be guided by the following considerations :

1. The achievement as soon as possible of tariff autonomy and in the interim to obtain ample increases to assist the national Government over a trying period ;

2. The revision of unequal treaties for the purpose of re-establishing full sovereignty, but in such a manner as not to destroy the good-will and credit of China in the money markets of the world

—that is, to achieve to the full China's national aspirations without frightening away from China potential investors in China's securities.

3. The steering of an even course with Japan, so that no more serious imbroglio might follow the Tsinan Incident; so that, although national honor is not sacrificed, there is nevertheless no further loss of territory while at the same time no reason is given to Japan to block the whole program of international relations;

4. The elimination of the small and really disinterested Powers from their primary positions as members of the Treaty Powers and in this manner to limit the struggle to one between China and the Powers which have a vital interest in China, that is, Great Britain, the United States, Japan and France.

5. To find a solution for the Sino-Russian problem, which must grow increasingly acute as Russian imperialism advances in Turkestan and as Russian imperialism gives to Japan the necessity of safeguarding her strategic position in Manchuria.

The Soong-MacMurray Treaty served to open the ground for Tariff Autonomy. It established a formula and a precedent. It made it possible for Dr. C. T. Wang and Mr. T. V. Soong to negotiate with all other Powers on a similar basis, while, at the same time, it afforded the protection of a most-favored national clause, without which no new treaties would have been possible. The success *of this plan is perfectly obvious at this moment, for the new tariff* arrangements have already been announced to take effect on February 1, and even should there be delay over some minor detail of protecting goods in shipment, the new tariff will undoubtedly be wholly effective by March 1. This is an achievement in diplomacy, in which Dr. Wang and Mr. Soong share the honors and from which the Chinese people will ultimately enjoy tremendous benefits. The radicals naturally complain that Dr. Wang has not got them the tariff autonomy which they had anticipated would come into effect on January 1. They do not understand that great Powers are not so ill-informed as they would like them to be; that all the expensive and intricate propaganda machinery of the Kuomintang and the Nationalist Government has deceived no one; that the Tariff Treaties are an evidence of good-will on the part of the Powers, that they have been signed in spite of misgivings and uncertainty, that they would never have been signed, were there not a strong desire on the part of foreigners to support by action those Ministers of State who assume responsibility even if they are deprived of power by militarists and party politicians and opportunists.

Even Japan, boycotted and attacked by the Kuomintang, which in accordance with the Organic Law is the Government of China, did not oppose the general principle of tariff autonomy and treaty revision. The negotiations between Mr. Soong and Mr. Yada, the Japanese Consul-General in Shanghai, are, *at the moment of writing,* in the stage of agreeing to mere formalities; the principles at stake, having been determined and these negotiations continued after mob violence and radical interference had prevented Dr. C. T. Wang from winning a genuine diplomatic victory for his country by encompassing Sino-Japanese Amity after so many years of discord. The Japanese were prepared for a compromise, but the radicals in the Kuomintang purposed treating Japan as a conquered nation—sought to impose extreme terms on Japan which would have imperilled Japan's economic life and her strategic position in Manchuria. The radicals won the day—that is, China and Japan are still at logger-heads and China's era of reconstruction has not yet arrived.

The new tariff, which goes into effect then on or about February 1, is not complete tariff autonomy, but it is a definite step in that direction. Basically, it is similar to the proposals of the British, Japanese and American delegations at the Tariff Conference in Peking, but there have been changes. Whereas at Peking, the general tendency among the Powers was to demand that tariff autonomy should not be created until *likin*, that notoriously oppressive transit tax, be abolished, now no one worries much about *likin* or any other internal revenue taxes, for taxation is hopelessly on the increase, so much so that in North China, nine provinces are in a state of perpetual starvation and still the taxes mount higher and higher. The foreigner, however, realizes that he can do little about taxation in China, that that is a task for the Chinese people and that they will one day rise and literally slaughter the tax collectors. One knows that and fears it, but the taxes continue to mount higher and higher and the numbers of soldiers are on the increase and officials are extravagant. But China is a big country and if there is peace, there is always trade and trade will provide ample funds eventually to meet all requirements without increasing taxes.

The revision of the unequal treaties at this time presents a particularly difficult task, because the actual situation in the country is not sufficiently encouraging to justify a favorable attitude on the part of the Powers. A Minister of Foreign Affairs is faced with the necessity of explaining away the enormous number of troops still marching across the country, the failure of the Government to achieve a single improvement in the Courts of Law and the inability of both national and provincial governments to protect life and property in the interior. Dr. C. T. Wang, the Minister of Foreign Affairs, then has before him the problem of signing agreements, in which the principle of equality would be recognized, so that ultimately the way would be clear for the abolition of extraterritoriality. This is an intricate and painful process and that it at all meets with success is little short of remarkable.

In the Belgian Treaty the equality of relationship as regards the Customs is recognized and a mutual most favored nation clause is inserted. *In the past, China has invariably been forced to abide by* treaties with unilateral benefits. Similarly, the principle of the abolition of extraterritoriality is laid down. However, the treaty does not become operative until January 1, 1930, if detailed arrangement can be effected by then and in the event of failure to effect such arrangements, the most favored nation clause becomes operative. The Sino-Belgian Treaty is a remarkably well-balanced document because it recognizes all of China's national aspirations, but does not place Belgium at a disadvantage as compared with other Powers. In the annexes to the treaty, particularly the second annex, China is required to promulgate a civil and commerical code before January 1, 1930. There has been opposition to this clause because it has been felt that here is a unilateral demand. The actual truth is that no department of the Nationalist Government has quite so thoroughly failed to live up to the expectations of China's friends as the judicial department and if its future prospects are to be judged by its past performances, it will achieve nothing by January 1, 1930. But neither the Belgians nor the Ministry of Foreign Affairs is to be judged by the incompetency of the judicial branch of the Nationalist Government. The Belgian Treaty follows:—

## Preliminary Treaty of Amity and Commerce Between China and Belgium

The National Government of the Republic of China and His Majesty the King of the Belgians, acting in his name and in the name of Her Royal Highness the Grand Duchess of Luxemburg in virtue of existing agreements, being mutually animated by a desire to further strengthen the ties of friendship already happily existing between China and the Union of Belgium and Luxemburg, have decided to conclude a Preliminary Treaty of Amity and Commerce and have, for this purpose, named as their Plenipotentiaries, that is to say:

His Excellency the President of the National Government of the Republic of China.

*Dr. Chengting T. Wang, Minister for Foreign Affairs of the National Government of the Republic of China;*

His Majesty the King of the Belgians.

Baron J. Guillaume, Chargé d'Affaires ad interim of Belgium in China;

who, having exchanged their full powers found to be in due and proper form, have agreed upon and concluded the following Articles:

The two High Contracting Parties recognize that, in the matter of *customs and all related matters,* they are on a footing of perfect equality, and on the basis of this principle they agree that such matters shall be regulated exclusively by their respective national laws.

It is further agreed that, in respect of all questions of customs as well as all questions relating thereto, neither of the two High Contracting Parties shall be subject, *in the territory of the other,* to a treatment less favorable than that accorded to any other country.

In no case shall the nationals of one of the High Contracting Parties be compelled to pay, in the territory of the other, with respect to the importation as well as exportation of merchandise, customs dues, transit taxes, or taxes of any other kind other or higher than those which are paid by the nationals or the nationals of any other country.

### ARTICLE II.

*The nationals of each of the two High Contracting Parties shall be subject, in the territory of the other Party, to the laws and the jurisdiction of the law courts of that Party.*

### ARTICLE III.

The two High Contracting Parties shall as soon as possible enter into negotiations with a view to the conclusion of a Treaty of Commerce and Navigation based upon the principle of reciprocity and equality of treatment.

### ARTICLE IV.

The present Treaty is written in Chinese, French and English; in case of any difference of interpretation, the English text shall be held to be authoritative.

### ARTICLE V.

The present Treaty shall be ratified as soon as possible and the ratifications shall be exchanged at Nanking. It shall come into force on the day on which the two Governments shall have notified each other that the ratification has been effected.

In testimony whereof, the respective Plenipotentiaries have signed the present Treaty in duplicate and have affixed their seals thereto.

Done at Nanking this twenty-second day of the eleventh month of the seventeenth year of the Republic in China, corresponding to the twenty-second day of November, nineteen hundred and twenty-eight.

CHENGTING T. WANG.

Plenipotentiary and Minister for Foreign Affairs of the National Government of the Republic of China.

BARON J. GUILLAUME.

Plenipotentiary and Chargé d'Affaires ad interim of Belgium in China.

### ANNEX I.

MINISTRY OF FOREIGN AFFAIRS.

Nanking, November 22, 1928.

Monsieur le Chargé d'Affaires,

In the name of the National Government of the Republic of China, I have the honor to state that Article II of the Treaty signed this day between China and Belgium shall be understood to begin to be operative on January 1, 1930. Before such date the Chinese Government will make detailed arrangements with the Belgian Government for the assumption by China of jurisdiction over Belgian subjects. Failing such arrangements on the said date, Belgian subjects shall thereafter be amenable to Chinese laws and jurisdiction as soon as the majority of the Powers now possessing extraterritorial privileges in China shall have agreed to relinquish them.

(Signed) CHENGTING T. WANG.

*Nanking, November 22, 1928.*

*Monsieur le Ministre,*

*I have the honor to acknowledge the receipt of Your Excellency's Note of to-day's date which reads as follows :—*

*"In the name of the National Government of the Republic of China, I have the honor to state that Article II of the Treaty signed this day between China and Belgium shall be understood to begin to be operative on January 1, 1930. Before such date the Chinese Government will make detailed arrangements with the Belgian Government for the assumption by China of jurisdiction over Belgian subjects. Failing such arrangements on the said date, Belgian subjects shall thereafter be amenable to Chinese laws and jurisdiction as soon as the majority of the Powers now possessing extraterritorial privileges in China shall have agreed to relinquish them."*

I have the honor to express to Your Excellency the agreement of His Majesty's Government on this subject.

I avail myself of this opportunity to renew to Your Excellency the assurance of my highest consideration.

(Signed) BARON J. GUILLAUME.

### ANNEX II.

DECLARATION.

I have the honor to declare that on or before January 1, 1930, the Civil Code and the Commercial Code, in addition to other Codes and laws now in force, will be duly promulgated by the National Government of the Republic of China.

### ANNEX III.

JOINT DECLARATION.

The Chinese and Belgian Governments declare that it did not appear necessary to insert in the Sino-Belgian Treaty signed this day a clause guaranteeing to the Chinese citizens in Belgium and Luxemburg and to the Belgian and Luxemburg subjects in China the application of their respective national laws relating to their personal status, inasmuch as the High Contracting Parties recognize in a general way this principle which is based on Private International Law, except in the case where such laws will be contrary to the public order of the country to apply them.

(Signed) CHENGTING T. WANG.

(Signed) BARON J. GUILLAUME.

### ANNEX IV.

DECLARATION.

In the name of the National Government of the Republic of China I have the honor to declare that, when Belgian subjects in China cease to enjoy the privileges of consular jurisdiction and when the relations between the two countries are on a footing of perfect equality, the Chinese Government, in view of the fact that Chinese citizens are permitted to live and trade and to acquire property in any part of the territories of Belgium and Luxemburg, will permit Belgian and Luxemburg subjects to enjoy the same rights in China, subject to the limitations to be prescribed in its laws and regulations.

(Signed) CHENGTING T. WANG.

### ANNEX V.

DECLARATION.

In the name of my Government I have the honor to declare that Belgian and Luxemburg subjects in China shall pay such taxes as may be prescribed in the laws and regulations duly promulgated by the Chinese Government, provided that the same taxes are paid by the nations of all the Powers having treaty relations with China.

(Signed) BARON J. GUILLAUME.

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The Norwegian Treaty is largely a Customs Treaty following the general spirit of the Soong-MacMurray Agreement. The Norwegian Treaty follows :—

Nanking, November 15, 1928.

Mr. N. AALL,

Norwegian Chargé d'Affaires in China.

Monsieur le Chargé d'Affaires :

I have the honor to state that more than three quarters of a century have elapsed since the conclusion of the Treaty of Peace, Amity, and Commerce between China and Norway in 1847, and that during that long period of time conditions in both countries have so changed that many provisions in the said Treaty have outlived their usefulness and, if allowed to continue to exist in their present form, would give rise to difficulties and complications. It is therefore my wish that your Government would soon enter into negotiations with the National Government of China for the conclusion of a new Treaty in place of the Treaty of 1847 on the basis of equality and mutual respect for sovereignty.

CHENGTING T. WANG,

Minister for Foreign Affairs.

---

LEGATION DE NORVEGE.

Shanghai, November 17, 1928.

His Excellency

Dr. C. T. WANG,

Minister for Foreign Affairs

of the Nationalist Government.

Monsieur le Ministre :

I have the honor to acknowledge the receipt of Your Excellency's Note of the 15th inst. suggesting that my Government enter into negotiations for a new Treaty in place of the Treaty of 1847, on the basis of equality and mutual respect for sovereignty.

The very fact that my Government did so readily meet the wishes expressed in Your Excellency's Note of September 12, 1928, proposing a new Treaty on tariff and related matters, would, in my opinion, give ample proof of the friendly feeling entertained in Norway toward the Chinese Republic, and when these feelings have found expression in the conclusion of the new tariff treaty between the two countries, I am confident that the friendly attitude of my Government will not be found to have changed at the time when the question of revising the whole Treaty of 1847 on the basis of equality and mutual respect for sovereignty is brought up for consideration.

I avail myself of this opportunity to renew to Your Excellency, Monsieur le Ministre, the assurance of my highest consideration.

N. AALL,

Chargé d'Affaires.

## Text of Treaty

The Republic of China and the Kingdom of Norway, both being animated by an earnest desire to maintain the good relations which happily subsist between the two countries, and wishing to extend and consolidate the commercial intercourse between them, have, for the purpose of negotiating a treaty designed to facilitate these objects, named as their Plenipotentiaries :—

His Excellency the President of the National Government of the Republic of China ;

Dr. Chengting T. Wang, Minister of Foreign Affairs of the National Government of the Republic of China ; and His Majesty the King of Norway ;

Mr. N. Aall, Chargé d'Affaires of Norway in China ; who, having met and duly exchanged their full powers, which have been found to be in proper form, have agreed upon the following Articles :

### ARTICLE I.

All provisions which appear in the treaties hitherto concluded and in force between China and Norway relating to rates of duty on imports and exports of merchandise, drawbacks, transit dues and tonnage dues in China shall be annulled and become inoperative, and the principle of complete national tariff autonomy shall apply, subject, however, to the condition that each of the High Contracting Parties shall enjoy in the territories of the other with respect to the above specified and any related matters treatment in no way discriminatory as compared with the treatment accorded to any other country.

The nationals of neither of the High Contracting Parties shall be compelled under any pretext whatever to pay within the territories of the other party any duties, internal charges or taxes upon their importations and exportations other or higher than those paid by nationals of the country or by nationals of any other country.

### Article 8

The English and Chinese texts of the present Treaty have been carefully compared and verified; but, in the event of there being a difference of meaning between the two, the sense as expressed in the English text shall be held to prevail.

The present Treaty shall be ratified as soon as possible and shall come into force on the day on which the two Governments shall have notified each other that the ratification has been effected.

In testimony whereof the respective Plenipotentiaries have signed the present Treaty in duplicate in the Chinese and English languages and have affixed thereto their seals.

Done at Shanghai this twelfth day of the eleventh month of the seventeenth year of the Republic of China, corresponding to the twelfth day of November, nineteen hundred and twenty-eight.

Chengting T. Wang,

Plenipotentiary and Minister of Foreign Affairs of the National Government of the Republic of China.

N. Aall,

Plenipotentiary and Chargé d'Affaires of Norway in China.

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The Sino-Italian Treaty is almost identical with the Sino-Belgian Treaty and is here given for its historical importance :—

## Preliminary Treaty of Amity and Commerce Between the Republic of China and the Kingdom of Italy

The Republic of China and the Kingdom of Italy being equally animated by the desire to strengthen the ties of friendship which happily subsist between the two countries and to promote and consolidate their commercial relations, have resolved to conclude a Preliminary Treaty for Amity and Commerce, and have, for this purpose, named as their Plenipotentiaries, that is to say:

His Excellency the President of the National Government of the Republic of China:

Dr. Chengting T. Wang, Minister for Foreign Affairs of the National Government of the Republic of China;

His Majesty the King of Italy:

Mr. Daniele Vare, Commander of the Order of the Crown of Italy, Officer of the Order of S.S. Maurice and Lazarus, Envoy Extraordinary and Minister Plenipotentiary of His Majesty the King of Italy to China; who, having met and communicated to each other their respective full powers, found in good and due form, have agreed upon the following Articles:

### Article I.

The two Contracting Parties agree that the customs tariff and all matters related thereto shall be regulated exclusively by their respective national legislations.

It is further agreed that each of the High Contracting Parties shall enjoy in the territory of the other, with regard to customs and all related matters, treatment in no way less favorable than the treatment accorded to any other country.

The nationals of each of High Contracting Parties shall not be compelled, under any pretext whatever, to pay within the territories of the other Party any duties, internal charges or taxes upon the importation or exportation of goods, other or higher than those paid by the nationals of the country or by the nationals of any other country.

### Article II.

The nationals of each of the two High Contracting Parties shall be subject, in the territory of the other Party, to the laws and jurisdiction of the law courts of that Party, to which they shall have free and easy access for the enforcement and defence of their rights.

### Article III.

The two High Contracting Parties have decided to enter as soon as possible into negotiations for the purpose of concluding a Treaty of Commerce and Navigation based on the principles of absolute equality and non-discrimination in their commercial relations and mutual respect for sovereignty.

### Article IV.

The present Treaty has been drawn up in two copies in the Chinese, Italian and English languages. In the event of there being any difference of meaning, the English text shall be held to prevail.

### Article V.

The present Treaty shall be ratified as soon as possible and shall come into force on the day on which the two Governments shall have notified each other that the ratification has been effected.

In faith whereof, the respective Plenipotentiaries have signed the present Treaty and have affixed thereto, their seals.

Done at Nanking this twenty-seventh day of the eleventh month of the seventeenth year of the Republic of China, corresponding to the twenty-seventh day of November, nineteen hundred and twenty-eight (the seventh year of the Fascist Era).

(Signed) Chengting T. Wang,

Plenipotentiary and Minister for Foreign Affairs of the National Government of the Republic of China.

(Signed) Daniele Vare,

Plenipotentiary and Envoy Extraordinary and Minister Plenipotentiary of His Majesty the King of Italy to China.

### Annex I.

MINISTRY OF FOREIGN AFFAIRS

Nanking, November 27, 1928.

Monsieur le Ministre

In the name of the National Government of the Republic of China, I have the honor to state that Article II of the Treaty signed this day between China and Italy shall be understood to begin to be operative on January 1st, 1930. Before such date the Chinese Government will make detailed arrangements with the Italian Government for the assumption by China of jurisdiction over Italian subjects. Failing such arrangements on the said date, Italian subjects shall be amenable to Chinese laws and jurisdiction from a date to be fixed by China, after having come to an agreement for the abolition of extraterritoriality with all the Powers signatory of the Washington Treaties, it being understood that such a date shall be applicable to all such Powers.

By "Powers signatory of the Washington Treaties" shall be meant those Powers, other than China, which directly participated in the discussion of Pacific and Far Eastern Questions in the Conference on the Limitation of Armament held in Washington in 1921-22.

I avail myself of this opportunity to renew to Your Excellency the assurance of my highest consideration.

(Signed) Chengting T. Wang.

His Excellency
Mr. Daniele Vare,
Italian Minister to China,
Nanking.

---

Nanking, November 27, 1928.

VII year of the Fascist Era.

Monsieur le Ministre,

I have the honor to acknowledge the receipt of Your Excellency's Note of to-day's date which reads as follows:

"In the name of the National Government of the Republic of China, I have the honor to state that Article II of the Treaty signed this day between China and Italy shall be understood to begin to be operative on January 1, 1930. Before such date the Chinese Government will make detailed arrangements with the Italian Government for the assumption by China of jurisdiction over Italian subjects. Failing such arrangements on the said date, Italian subjects shall be amenable to Chinese laws and jurisdiction from a date to be fixed by China, after having come to an agreement for the abolition of extraterritoriality with all the Powers signatory of the Washington Treaties, it being understood that such a date shall be applicable to all such Powers.

"By 'Powers signatory of the Washington Treaties' shall be meant those Powers, other than China, which directly participated in the discussion of Pacific and Far Eastern Questions in the Conference on the Limitation of Armament held in Washington in 1921-22."

I have the honor to state that the Italian Government is in full agreement with the above statements.

I avail myself of this opportunity to renew to Your Excellency the assurance of my highest consideration.

(Signed) Daniele Vare.

His Excellency,
Dr. Chengting T. Wang,
Minister for Foreign Affairs,
Nanking.

### Annex II.

### Declaration.

I have the honor to declare that on or before January 1, 1930, the Civil Code and the Commercial Code, in addition to other Codes and laws now in force, will be duly promulgated by the National Government of the Republic of China.

(Signed) Chengting T. Wang.

### Annex III.

### Declaration.

In the name of the National Government of the Republic of China, I have the honor to declare that, when Italian subjects cease to enjoy the privileges of consular jurisdiction and other special privileges, and when the relations between the two countries are on a footing of perfect equality, the Chinese Government, in view of the fact that Chinese citizens, subject to the limitations prescribed in Italian laws and regulations, enjoy the right to live and trade and to acquire property in any part of the Italian territory, will grant the same rights to Italian subjects in China, subject to the limitations to be prescribed in its laws and regulations.

(Signed) Chengting T. Wang.

### Annex IV.

### Joint Declaration.

It is understood that Italian subjects in Chinese territories and Chinese citizens in Italian territories shall hereafter pay such taxes or imposts as may be prescribed in the laws and regulations duly promulgated by the Chinese and the Italian Government respectively, provided that such taxes or imposts are not other or higher than those paid by the nationals of any other country.

(Signed) Chengting T. Wang.
(Signed) Daniele Vare.

*(Continued on page 563).*

# British Policy in China

## "That Forgotten Treaty"

**Comments on a new book, entitled "Foreign Diplomacy in China, 1894-1900, A study in Political and Economical Relations with China" by Dr. Philip Joseph, Ll. B. With an introduction by Sir A. Frederick Whyte. George Allen and Unwin, Ltd., Publishers**

*By Geo. Bronson Rea*

WHEN the secret Sino-Russian Treaty of Alliance of 1896 was advanced by Sazanoff at the Paris Peace Conference to defend the old Russian policy in China and substantiate certain claims to Manchuria, it dispelled all doubts as to the existence and authenticity of this much discussed document. For although Li Ching-mai (the son of Li Hung-chang) had unofficially disclosed the terms of this agreement in an article which appeared in *The Daily Telegraph* in 1910, neither the Chinese or the Russian Governments had officially confirmed its existence. In fact, the Russian Government at all times denied that such a treaty had been signed. Outside of a vague reference to it by the Empress Dowager, the Chinese Government had also maintained a discreet silence as to its existence. Our attention was invited to Sazanoff's disclosures by Sir Ronald Macleay, chief Far Eastern expert to the British Delegation at the Peace Conference, who suggested that if we would obtain a copy of this treaty, it would convince us of the sincerity of British policy in China and disabuse our mind of certain misconceptions about Britain's part in exacting specific railway concessions and in creating the Yangtze Valley into a British sphere of interest. Although Sazanoff was at Paris in an unofficial capacity, the mere fact that he invoked this treaty to defend Russian policy and rights was a guarantee of its authenticity. An intimate knowledge of China's railway and loan agreements and the international politics that these documents reflected, convinced us that the Battle of Concessions of 1898 and the partitioning of China into spheres of interest were in some manner directly connected with the Franco-Russo plans to dominate China financially and politically. We had sensed the strategic background to the events of that period and Sazanoff's admission of the existence of the Li-Lobanoff Treaty of Alliance, dispelled all further doubts in our mind. This was the missing link in the chain of circumstances that led to China's misfortunes; the Key to the Puzzle that had defied the best experts to unravel. From the moment we read the text of the Li-Lobanoff treaty as submitted by Sazanoff, we recognized that China herself was responsible for the aftermath of events which resulted in the Russo-Japanese War and the reshaping of European policies which are as active to-day as they were in the early years of the century. It has been difficult to change the highly colored versions of history which for over a quarter of a century have stood unchallenged. It was not until the Chinese Delegation to the Washington Conference officially confessed to the existence of the Li-Lobanoff Treaty of Alliance and filed its abridged text that the historian was justified in stressing the importance of this new evidence which so completely alters all that we had been educated to accept as final. When the Chinese filed a telegraphic summary of this treaty with the Conference they promised to submit the full text of the treaty later on. Early last year, we wrote to the State Department, inquiring if the Chinese had complied with their promise. The State Department officially confirmed the fact that the full text of the treaty had been filed and, that it was identical with the copy published in the *London Daily Telegraph* of February 15, 1910, which appears on page 81 of MacMurray's Treaties. This official statement is therefore of great importance, as it reveals the purely military nature of the alliance and the status of the Chinese Eastern Railway and its subsequent South Manchurian Branch as instruments for the transport of Russian troops to the Korean frontiers for the purpose of waging war upon Japan.

The establishment of this historical fact completely alters the status of the Chinese Eastern Railway. It was never a commercial undertaking. It was an instrument of war designed solely for the undoing of Japan. It was the price Li Hung-chang willingly paid in order to be revenged upon Japan for his humiliation of the year previous. As Li Ching-mai explained in his article in *The Daily Telegraph*, in 1910, "The defensive alliance was then the peg on which China's statesman hung the subject. We will give you the use of our territory to build the railway on, and we will also confer special rights of management on the railway company, but only as integral parts of a comprehensive treaty of alliance. The railway concession shall be the corollary of the defensive alliance, and we shall mete it out ungrudgingly. We allow you the use of our land; you guarantee us the integrity of our Empire." That was the compact, and in that compact is included China's motive for the concession.

Recognition of the fact that John Hay promulgated the Open Door doctrine for the preservation of China's territorial integrity, at the precise time when China had secretly surrendered her sovereignty in Manchuria to Russia under the terms of an alliance designed to crush Japan, so completely outrages all that the American public has been taught to believe, that even now with the evidence before them American writers and experts are loath to admit a truth which dispels the popular delusion that in some way, we were responsible for saving China from partition. In fact, several prominent American writers on Far Eastern affairs, decline to even mention the existence of this treaty in their books, while others connected with associations for the study of our foreign affairs, oppose any reference to it in their open discussions.

Only one American writer has had the courage to place the evidence before the American public that Japan is entitled to the credit for a task we have been educated to believe belongs to ourselves. Professor Alfred L. P. Denniss in his book "Adventures in American Diplomacy 1896-1906" threw the search light on our diplomacy for that decade. Its one defect was, that in the chapters devoted to the Far East, he omitted any reference to the secret Sino-Russian Treaty of Alliance of 1896 that would have enabled his readers to understand what was going on behind the scenes. His book was based on the state papers of Olney, Hay and Roosevelt and State Department records and, as such, was almost official.

It has remained for a Canadian barrister to write a book on the most critical years of modern Far Eastern history that fully clarifies the events of that period. Its author, Dr. Philip Joseph, originally intended to deal with the Chinese question from the beginning of the century to the recent disturbances. A survey of the material for those years convinced him that events which occurred after 1900 could be properly guaged only after an appreciation of the conditions which gave rise to them. He very wisely goes back to the Sino-Japanese War as his starting point.

Dr. Joseph has also had access to official information and material hitherto closely guarded and, like Profesor Denniss, his sources of information are fully acknowledged and noted in an appendix to each chapter. Dr. Joseph approaches his subject in an objective spirit, neglecting no evidence and leaving the story to point its own moral. In his pages, the facts speak for themselves. Sir Frederick Whyte writes the introduction to the book, emphasizing the important stages in the story. It is, as Sir Frederick points out, "a complicated story and many who have tried to read it before, have concluded that in the so-called partitioning of China, all the Powers were equally deep in wrong-doing. But Dr. Joseph proves, with overwhelming documentary evidence, that the blame lies unequally; that, of the five Powers most closely concerned, Russia was the most cynical and deliberate aggressor, with France as a willing accomplice supplying money to back Russian plans, with Belgium as a convenient screen on at least one critical occasion; and Germany was abetting Russia in her Far Eastern policy in order to divert her from Europe. America plays throughout an inconspicuous part; Japan a rôle of increasing importance as the ultimate and determined enemy of Russia. Finally, Great Britain emerges from the tangled story with her traditional policy of the integrity of China and the Open Door seriously modified by the pressure of untoward circumstances, but also with a record of fair dealing to which no other Power can lay claim."

It is difficult to set aside or challenge the facts so carefully assembled by Dr. Joseph which leads to his conclusion that the diplomatic battle for the recognition of the Open Door, was fought by the British Foreign Office and not by the American State Department; that its success was, in fact, a victory for British policy. However, we incline to the belief that Dr. Joseph marshalled his facts with this object in view, omitting to stress the vital strategic problems that influenced British policy in China during that period. For, the evidence is equally strong and convincing that British concern for the Open Door was simply the screen which concealed a desperate diplomatic battle in which Great Britain played a lone hand in counteracting the Russo-Franco-Belgo plots to dominate China in order to facilitate Russia's advance upon India by way of her north-eastern frontiers.

Dr. Joseph recognizes this strategic feature of British policy in the beginning of his book and then develops his story along lines which relegates it to a secondary importance. He has been so fair, impartial and thorough in assembling his evidence, we are confident, that when he comes to fit the pieces together in his forthcoming book which is to carry forward the story from 1900 to date, he will recognize the vital strategic problems confronting Great Britain created by the secret Sino-Russian alliance of 1896. For, only by stressing the importance of this document and its bearing on subsequent events, can British policy in China be fully clarified and vindicated.

The evidence proves that China was not the innocent and helpless victim of the so-called imperialistic Powers. She brought her troubles upon herself by signing a stupid secret alliance that facilitated the carrying out of Russia's plans to absorb the country in the same manner as she had brought the rest of Central Asia under her domination. This secret alliance let Russia into Manchuria and two years later brought her to the tip of the Liaotung Peninsula and the control of an ice-free, deep-water port, enabling her for the first time to challenge Britian's naval supremacy on the Pacific. Every forward step made by Russia in the north was followed by a corresponding advance of her French ally in the south. Every move made by Belgium dovetailed into the Franco-Russian scheme of conquest. As Dr. Joseph says in referring to the Russo-French program; "The French were to encroach upon China from the south; the Russians from the north. Together they would hold her in a vice." Although he does not clearly bring forth the evidence in his book, other testimony conclusively proves that the Compagnie Internationale de Orient organized by King Leopold, was the Belgian holding company deriving its financial backing from France, whose object was to obtain Chinese concessions through its subsidiaries for the purpose of advancing the Russo-French schemes of conquest.

Caught between Russia on the north and France on the south, with Belgium negotiating concessions all over the map to support the Russian program, Great Britain had no recourse but to demand compensatory damages in the way of strategic railway concessions and guarantees that certain territory should not be alienated. When the Belgians secured the concession for the Peking-Hankow Railway after the Chinese had assured the British minister that Russia had no financial interest in it, and it was then discovered that the Russo-Chinese Bank was designated in the agreement as the fiscal agent of the loan, the British Government was forced to declare itself. This concession admitted the Russians into the Yangtze Valley, where the Belgians had also secured the contract to build the Hanyang Iron & Steel Works. Britain's determination to maintain at all costs her strategic position in this region is disclosed in the crisp instructions to the British Minister at Peking. It reads;

> "You are authorized to inform the Tsung Li Yamen, that unless they agree at once (to the demands for compensatory railways rights) we shall regard their breach-of-faith concerning the Peking-Hankow Railway *as an act of deliberate hostility towards this country, and shall act accordingly.* After consultation with the Admiral, you may give them the number of days or hours you may think proper within which to send their reply."

There was no trade policy in that ultimatum. It breathes the spirit of a Government thoroughly aroused and grimly determined to resort to instant hostilities against the action of China in opening her doors so that the Franco-Russo-Belgo combination could get that much nearer the northeastern frontiers of India. The British Government then went further and took another step which has also been interpreted as a trade policy. It forced from China the promise not to alienate the Yangtze Valley to any other Power, thus creating a solid block of territory, in reality, a buffer state, in the heart of China, barring the way to any further advance of Russia southwards towards her goal in India. The strategic significance of this step is clearly emphasized by Sir Archibald Colquhoun in his books of the day, entitled "Russia Against India" and "Overland to China." In the former, he says:

> "When Russia is extending her lines from the Caspian to Afghanistan and the Persian Gulf and through China to the Yangtze Valley, Britain cannot afford to sit still looking always for immediate results."

Regarding Britain's policy of controlling southwest China and the Yangtze Valley to safeguard her position in India, he says:

> "And what will be the effect if this process be continued until one day Russia is mistress of China, as well as paramount in Afghanistan and Persia? On the northeastern frontier Britain can only defend India by introducing a counterbalance in China itself, by developing the Yangtze basin . . . and by controlling southwest China, where lies the access to Burma and through Burma to India. This would afford Britain a proper base and line of defence on the Upper Yangtze which, combined with her seapower and the control of the great Chinese waterway, would enable her to hold her own."

This explains why Britain was willing to go to war immediately with China when she discovered that under cover of the Belgian concession to the Peking-Hankow Railway, Russia had forestalled her in the Yangtsze Valley and why, after exacting compensatory damages, she created the Yangtze region into a British sphere of interest.

When Russia subsequently obtained the 99 year lease to the Liaotung Peninsula and the right to construct the South Manchuria Railway, Britain was again compelled to act. This was the last straw. To keep Russia from having an outlet into the Pacific had been the cardinal point in British Empire policy. Lord Curzon had made this clear when he declared;

> "The cession of a port upon the Persian Gulf to Russia by any Power should be regarded as a deliberate insult to Great Britain; as a wanton rupture of the *status quo*, and as an intentional provocation to war; and he would impeach the British Minister who was guilty of acquiescing in such a surrender, as a traitor to his country."

These were strong words, typical of British determination to prevent Russia from acquiring an outlet to waters where her fleet in co-operation with the French, could menace her position in India. The same argument applied with equal force to China.

If any further proof be needed to emphasize the strategic character of British policy in China at that date, it is seen in the reasons underlying the Kowloon Lease. Mr. Balfour, the very statesman who in 1898 defined the British conception of the Open Door and reconciled this principle with the "spheres of interest doctrine," fully explained the strategic significance of the Kowloon Lease at the Washington Conference. He declared that without the leased territory, Hongkong was perfectly indefensible and would be at the mercy of any enemy possessing modern artillery. The lease of the Kowloon Extension had been obtained from China for no other reason except to give security to the port of Hongkong. With France installed at Kwangchow-wan; and her ally, Russia, holding Port Arthur; with Germany's eyes on Mire Bay (In the Kowloon territory) before she finally fixed on Tsingtau; with Italy demanding Sanmen Bay; Japan the province of Fukien and the port of Foochow; and even the United States seeking a suitable base that had not been preempted by the others, there was nothing left for Great Britain but to protect herself by demanding the lease of sufficient territory that would grarantee Hongkong against an attack from the land side. It is unnecessary to further piece together all the details of the events of that period. On the surface, it looked as though China was being partitioned. Underneath, it was a desperate struggle for world empire played on the chess-board of Asia in which Great Britain is revealed as pitted against a Russo-Franco-Belgo combination in secret alliance with China for the undoing of herself and Japan. It speaks volumes for the efficacy of British diplomacy that it sensed the danger from the visible working of the secret alliance without having an exact knowledge of its provisions.

When the story is carried forward, the full extent of the Russo-Franco-Belgo schemes of conquest will unfold itself. It will be revealed that the Belgians obtained control of the Kaiping mines, the iron and steel works at Hankow the Canton-Hankow Railway and, despite every effort on the part of Britain to thwart these moves, the Russian combination finally succeeded, with China's connivance, in splitting the country north and south and east and west with a system of trunk railways that laid it open to another forward movement on the part of Russia and France when the time was considered opportune to act. Only the Great War saved China from ultimate conquest by Russia. When the war started, the Russian Bear was securely seated on the north bank of the Yangtze thumbing his nose at the discomfited British Lion across the estuary at Shanghai. The sacrifices of Japan had been in vain. The Chinese had placed their secret ally once more in the position to reopen the conflict with Japan. Witte admits that Russia planned to fight Japan in 1912.

No Chinese diplomat, writer or propagandist will admit the bearing of the secret Li-Lobanoff Treaty of Alliance on the events which followed. To do so, would destroy the case for China that has been so skillfully built up by a suppression of this evidence. Despite the fact, that they confessed to its existence at Washington, and subsequently filed with the State Department the full text of the treaty, the Chinese declare that it is of no importance, that it has been forgotton and, that it is fantastic to bring it into the controversy at this late date. If it was not that the Manchurian question may once more plunge the Far East into the horrors of war, the existence of this treaty might well be relegated to the limbo of forgotten things. But, by their own insistence in declaring the 1915 treaties null and void, China's statesmen compel Japan to go back to Portsmouth to define her rights and status in Manchuria. Once the controversy goes back to this period, China must explain in a more satisfactory and convincing manner why her secret treaty of alliance with Russia has no bearing on a case which precipitated a war and brought Japan into South Manchuria as the heir to the rights she had conceded to Russia for the express purpose of crushing Japan.

The treaty may be conveniently forgotten. But the evidence stands in the records that it existed. It may have been inoperative during the Russo-Japanese War, but it was in force. It was never denounced. It worked. It accomplished its purpose. Japan paid the penalty and China by reason of the profound secrecy surrounding its existence emerged from the conflict as the injured and innocent victim.

It is in no spirit of unfriendliness to China that we have invited attention to the significance of a treaty that may yet determine the future status of Manchuria. Japan is apparently content to rest her case on the 1915 treaties, but when the Chinese insist that these instruments are invalid and indulge in violent anti-Japanese demonstrations and boycotts to enforce their point of view, sooner or later, these incidents will precipitate a crisis. Japan has firmly declared that she will never consent to any outside interference over her position and rights in Manchuria. She will never permit the case to go before an international tribunal or conference. She will fight, if necessary, to defend her position in that territory. If this be a correct interpretation of the Japanese position, then until such time as China is strong enough to enforce her viewpoint, she is courting certain disaster by inviting a show-down over Manchuria.

To state this fact is not Japanese propaganda. The Japanese have never invited attention to the bearing of this treaty on their position in Manchuria. They simply stand on the 1915 agreements and decline to discuss their legality. But, if the Chinese precipitate a crisis that calls for a reopening of the Manchurian question, there is little doubt but that they will have to face the consequences of an alliance which, although inoperative, was still in force at the time of the Portsmouth Peace Conference.

The present policies of Great Britian and Japan towards China are therefore deeply rooted in the lessons of the past. Twenty-four years ago, China's secret and tortuous diplomacy forced Japan to battle against heavy odds to preserve her independence. There is no doubt of the indemnity that she would have had to pay, had Russia emerged victorious. Great Britain held the ring for her Ally, ready to take immediate armed action if the battle went against her partner. For, not only was the independence of Japan at stake, but the future of the British Empire as well. Had Japan lost the battle, China would long since have passed under the dominion of Russia and Great Britain would have had to fight alone a coalition of European Powers determined to wrest from her the prize of empire in India.

China has shown herself incapable of resisting the encroachments and aggressions of Russia. The Slav policy in Asia never changes. Soviet Moscow is as determined to-day to oust Britain from India as Czarist Russia was in the past. Moscow is still bent on dominating China and relegating Japan to a minor position in Far Eastern affairs. Only the fact that a 4,000 mile single-track railway separates her from the battle ground, keeps her from renewing the conflict of 1904. China is still the secret partner of Russia, if not in an official sense, certainly in a moral one. She is powerless to defend herself or restore her authority in territories into which Russian influence has penetrated. Every concession Japan has made since the termination of the Great War to regain China's good-will, every position she has voluntarily surrendered, has simply opened the door for Russia to regain her former ascendency in Manchuria, in Mongolia and elsewhere until last year, China was again completely under the domination of Moscow and her territory used as a battle ground to injure Great Britain and Japan.

British troops are in China and, from all indications, are here to stay. A Japanese army occupies Shantung. China protests against this invasion of her territory and rejects all overtures for a settlement of outstanding questions until these forces are evacuated. On the other hand, we have the picture of Marshal Feng Yu-hsiang patiently waiting for the Japanese to withdraw so that he can take over control of Shantung and its deep water port at Tsingtao which provides him with a secure inlet for shipments of arms and munitions from abroad. Feng has been closely allied with Moscow in the past. There is no assurance that this partnership has been terminated. Feng is to-day the most powerful militarist in China, holding Nanking at his mercy. The Communist wing of the Kuomintang is preparing for another trial of strength in order to regain control of the Nationalist government. Any day, the situation in China may change, with Soviet Russia once more directing the policies of Nanking. No other nation has the right to dictate to China what she shall do in her own house. If she elects to align herself with Moscow, it is her own concern. But she must accept the consequences. Great Britain and Japan entertain no illusions about the Russian program in China. They have had their lesson and know exactly what to expect. There is considerable justification for the rumors now current about a new understanding between Great Britain and Japan and although it may never resolve itself into another hard and fast alliance, there is no escaping the conviction that events are shaping themselves in China along lines that must draw these two Powers closer together for the protection of their mutual interests. Britain's position in India and the security of Japan are closely related to the outcome of the present factional struggle in China. These two great Powers cannot remain indifferent to their own vital interests. The weakness of China and her inclination to lend herself to the Russian program constitutes a standing menace to the peace of the Far East. The strategic angle to British and Japanese policy in China cannot be set aside as unimportant. It still remains as the motivating force in their present diplomacy.

Dr. Joseph is to be congratulated for his able exposition of facts which clarifies the events of the period under review. He fully exonerates Great Britain from the charges of cynical and deliberate aggression upon China's sovereignty and territorial integrity. He prepares the ground for the reader to understand why the Anglo-Japanese alliance was made imperative in order to counteract the secret Sino-Russian agreement whose visible operation could be sensed and seen in every turn of the diplomatic wheel. And, what is more, Dr. Joseph produces the evidence to prove that the Chinese knew exactly what they were doing. Professor Denniss laid the foundation in his book for a revision of modern Far Eastern history. Dr. Joseph's researches makes this revision compulsory.

# Boycotting the Foreigner in China

THE application of the boycott in China has developed along such illegal and scandalous lines that the coining of an entirely new word is necessary to convey a distinction between the Irishman's weapon and the Chinese use of it. The original boycott against American goods in 1905 was a comparatively mild affair, but each succeeding use of the weapon has been characterized with an increasing disregard for law and order until it is now openly criminal in its operation, For this is exactly what the present anti-Japanese boycott in China has developed into ; a state of lawlessness, confiscation of private property, robbery, piracy, kidnapping, extortion, blackmail and injustice that cannot be defended by any appeal to patriotic motives. It is a menace to every nation doing business with China. To-day, it is the Japanese who are being robbed and maltreated. Yesterday, it was the British. The day before yesterday, it was the Americans. Any day, the pendulum of Chinese hatred against the foreigner may swing ; the Japanese may be the friends of China and the Americans, their enemies.

The boycott may be excusable when used wisely and with tact, but when it is carried to the extreme that shipments and stocks of Japanese goods are confiscated by a so-called patriotic committee in order to extort a squeeze from the merchant or, the articles are seized, sold, and the proceeds diverted into the treasury of this committee; when innocent purchasers of Japanese goods, when travellers and shippers on Japanese steamers are forcibly arrested, subjected to personal indignities and fined, and the authorities make no move to enforce law and order or punish the offenders, there is only one deduction to make from it all. The boycott as it is now worked in China is nothing but a cloak for illegal extortion and crime against property and persons. There is every evidence that these crimes are committed with the full sanction and approval of the Chinese authorities.

A few months ago, we listened to a Chinese diplomat in America denouncing Japan for her policy in Manchuria. He concluded with the threat that unless Japan modified her position, the boycott against her goods in China would be intensified. And the cultured and law-abiding American audience applauded. It was only a few weeks ago that the Chinese Ratepayers Association of Shanghai in an extraordinary outburst of anti-Japanese feeling, telegraphed Nanking that if Japan refused to revise the treaty according to China's wishes, "*we can derive benefit from the boycott of Japanese goods which is now being conducted in our country. This will certainly bring about an economic crisis in Japan.*"

Similar recommendations but of a much more virulent nature were made at the meeting of the Shanghai Anti-Japanese Association, when it was resolved to petition the postal authorities to prevent Japanese goods coming through the mails and to assist in confiscating these goods should they be so sent. More drastic measures were put in force against merchants dealing in Japanese goods, and a circular telegram was sent to all the provinces declaring that Japan is the sworn enemy of the Chinese people and urging further co-operation in injuring Japanese trade in China. A petition was also sent to the military authorities praying for protection for all engaged in anti-Japanese movements.

Two months ago, the Publisher and Editor of THE FAR EASTERN REVIEW visited Tokyo and Osaka and interviewed every prominent government official and the leaders of finance and business from the Premier down. We found that the Japanese, irrespective of political inclinations, were all deeply sympathetic with the Nationalist movement and sincerely desirous of arriving at an amicable and prompt settlement of all outstanding questions. We were specially interested in the effect of the boycott upon Japan's business. The picture was before us. Japan was forging ahead industrially in all directions. Shipbuilding works were active, cotton spinning, woolen and rayon mills were working overtime, immense preparations were under way for increasing the output of pig-iron, the steel industry was getting on its feet after years of depression, trade was increasing with the unfavorable balance against Japan becoming less and less. American money was flowing into the country and the Japanese leaders of finance were advocating that American investors be invited to become partners in their enterprises. Yes, Japan was prospering exceedingly. We could see no ill-effect from the boycott in China.

In the past ten years, or since the original anti-Japanese boycott was engineered in China, Japan has developed many new markets for her manufactured products and found many new sources of supply for her basic requirements. Ten years ago, Japan's trade with China was her main consideration. To-day her exports to China are only 19 per cent. of the total. At least one half of this trade is with North China and Manchuria where the boycott is not effective. There are many articles of absolute necessity to China that are excluded, so that the injury to Japan's export trade does not affect more than three, or at the most, five per cent. of Japan's total exports. The boycott hurts only a limited group of Japanese firms directly concerned with the Yangtze and South China trade, and even here, most of the big Japanese concerns are international traders and what they lose in China is more than offset by their profits from other quarters. That the boycott under such conditions can bring about an economic crisis in Japan and compel its Government to accept China's viewpoint in the settlement of outstanding questions, is the height of absurdity, a flight of the imagination that only an untrained mind could advocate or give credence to.

The facts as we found them have been characterized by an American advocate of the Chinafied modification of the boycott, as pure propaganda. Once again we appeal to the facts. The Finance Department of the Japanese Government in its last report issued on November 1, states that this year's trade with China has been the most successful in history.

It estimates the October exports to China at Y.47,154,000 and imports at Y.22,577,000, showing a balance of Y.24,577,000 in favor of Japan and this credit figure represents an increase over a similar balance for the corresponding period a year ago. The value of merchandise exports during the first ten months' period aggregated $455,636,000 and that of imports Y.312,073,000, or an export balance of Y.143,563,000. This excess export figure again represents an expansion of Y.9,687,000 over that for the same period of last year.

An examination of the China trade as of September 30 discloses the fact that, with the exception of cotton yarns on the export list and bean cake on the import list, all items showed a considerable increase over the trade figures for the similar period of last year. Cotton piece goods exports, valued at Y.150,441,000, represented a gain of $30 million, refined sugar at Y.29,513,000 was equal to a gain approximately of Y.9 million, while wheat, flour and paper, both piling up over Y.15 million business, forged ahead of last year's figures by Y.6 million and $4 million, respectively. The October result would indicate that this tendency for a better trading condition is being continued.

The Finance authorities of Japan believe that there is nothing in sight which would stand in the way of Japan's trade with China continuing the present forward movement. It is pointed out that a decline in cotton yarn exports during the nine months' period of current year by $800,000 is but a continuance of the general trend of less yarn exports and more cotton cloth outflow. A notable feature of the import trade with China is a Y.14 million decline in bean cake imports during the period for which the pressure from the ever popular sulphate of ammonia and other chemical fertilizer is accountable.

On the other hand imports from China of beans and peas, at Y.45,429,000 for the nine months' terms, represented a rise of closely Y.12 million over the same time last year, ginned and unginned cotton receipts, at Y.32,830,000, was an increase of $10 million. The Finance Department estimate for October trade with China follows : (in Y.1,000).

EXPORTS

| | Oct. | Since Jan. |
|---|---|---|
| Manchuria ... ... ... | 7,268 | 58,940 |
| North China ... ... ... | 8,554 | 90,722 |
| Central China ... ... ... | 18,055 | 166,590 |
| South China ... ... ... | 43 | 1,346 |
| Kwantung ... ... ... | 10,026 | 89,421 |
| Hongkong ... ... ... | 3,208 | 48,617 |
| Total ... ... ... | 47,154 | 455,636 |

IMPORTS

| | | |
|---|---|---|
| Manchuria ... ... ... | 1,628 | 55,985 |
| North China ... ... ... | 6,263 | 53,496 |
| Central China ... ... ... | 7,746 | 70,895 |
| South China ... ... ... | 817 | 8,491 |
| Kwantung ... ... ... | 6,101 | 122,399 |
| Hongkong ... ... ... | 22 | 807 |
| Total ... ... ... | 22,577 | 312,073 |

These official figures speak for themselves, but it is only one side of the ledger. Japanese publicists and economists have overrated the importance of the commercial relations between the two countries. The disorders and boycotts of the past ten years has gradually forced the Japanese to seek other outlets and purchase their requirements elsewhere. The two most important items of Chinese exports to Japan are bean cakes, valued at Y.60,000,000 and raw cotton valued at Y.50,000,000, representing one third of the total. Japan is expanding her chemical industry by leaps and bounds, manufacturing artificial fertilizers to such an increasing extent that it is already reflected in the falling off of imports of bean cake from Manchuria. It is only a question of time when this preferred market for one of China's chief products will disappear, and unless new outlets are found, China will be compelled to consume her own oil cake or reduce her crop of beans. This spells disaster to Manchuria. The discriminatory tariff enforced by India against the coarser grades of Japanese yarns, will react upon China. These coarse yarns are spun from a mixture of low grade Indian and lower grade China cotton. The effect will be to force Japan into the spinning of finer counts and higher grades of piece goods, which can only be produced from American and Egyptian cotton. No other nation will buy the Chinese short staple cotton, so she must either use her crop in her own mills or, decrease cultivation. Japan purchases Y.10,000,000 of Chinese eggs, but poultry farming on a modern basis is making rapid progress in Japan and in time she will free herself of this item also. Japan can do without Chinese coal, except that which comes from her own mines in Manchuria. She is rapidly becoming independent of China in the supply of iron ore. And so with many other articles. If Japan were to reciprocate and shut down on her purchases of Chinese products, which she is quite able to do without disarranging her economic system, the effect upon China in her present state of poverty, would be disastrous.

A few months ago, discussing with a leading official of the American Government the question of Japanese and American trade with China and the possibility of a boycott against American goods if we failed to accept the Chinese ideas on extraterritoriality and exclusion, he said : "*If the entire American trade with China was suddenly eliminated, it would not cause a ripple on the stock market.*" The same observation would seem to apply with equal force to Japan. This should give the Chinese and American advocates of the boycott something to ponder over. No nation is entirely dependent upon another for its trade and prosperity. No country can stand in splendid isolation and entertain the vain idea that her trade is solely essential to world prosperity, especially a nation sunk in the mire of political instability and financial depression. What China must cultivate, if she is to advance and inspire the confidence of foreign capital, is the spirit of world co-operation. On one hand, we have the picture of an impoverished China entertaining high hopes of inducing American capital to reconstruct and rehabilitate her ruined railways and industries, and on the other that of a vicious boycott against another nation whose capital to the extent of a billion gold dollars is already invested in similar enterprises. The outlook is not a pleasing one. There are still several unsolved questions between the United States and China. As time passes, other important issues will arise. Americans will hesitate before investing any large amount of capital in a country where the first difference of diplomatic opinion would bring down upon them the full force of a nation-wide boycott and confiscation of their properties.

## Another New Bridge Across the Menam at Bangkok

### Open Competition Invited

IN the November number of THE FAR EASTERN REVIEW was published a description of the new Rama VI. bridge across the Menam River at Bankgok. It has now been decided to construct another bridge over the Chao Phya River of equal length and importance and, according to advices from Bangkok, the Minister of Commerce and Communications, entrusted with the preliminary arrangements, telegraphed on October 29, to Mr. C. P. Sandberg, consulting engineers to the Siamese Railways in London, as follows ;

"His Majesty the King has decided to have a bridge constructed across the Chao Phya River to the south of the Rama VI. bridge, as a memorial to the founder of the Dynasty to be opened in April 1931, on the occasion of the completion of 150 years since the establishment of Bangkok as the capital of the country. You are asked to send some one as the guest of the Government to consult about the building of the bridge. The Government will receive representatives of various companies from England, France, Germany, the Netherlands, Belgium, Italy and America, and will pay the expenses of their coming to Bangkok in order to be able to tender for the construction of the bridge. Please inform various companies in all the countries mentioned who are willing to tender to complete the work within the time mentioned and cable me the names of the companies. Please understand that you and the Companies concerned should be here not later than December, to stay for a month or six weeks. In June or July, I shall be in London, and shall consult with you and a committee there as to the steps to be taken to get the work well done. The matter is one of importance, and His Majesty the King has decided to make a very large personal contribution towards the cost. It is therefore important that you should come yourself in order to get a grasp of the details. The bridge would be of the same length as the Rama VI. bridge, and wide enough to let four vehicles cross side by side. The passage in the middle will be from 100 to 120 metres and will open to enable large steamers to pass. The side passages must be wide enough for middle-sized steam vessels to pass easily.

"Please cable your reply as soon as possible with the list of companies that are sending representatives."

It is understood that the English firm of Dorman and Long, builders of the Sydney harbor bridge, have been invited to send a representative, and the German firm invited has already cabled the name of their representative and the date of his arrival. The French firm of Daydé, who built the Rama VI. bridge, have naturally been selected, and the names of other firms asked to tender from other countries have also been forwarded to Bangkok.

Firms, other thanthose asked, can send out representatives who will have exactly the same facilities accorded them for examination of the site and access to information regarding the proposed bridge. But such representatives will pay their own expenses to and fro.

## New Engineering Handbooks

### Compressed Air and Hydraulic Standards

PUBLICATIONS of prime interest to engineers have been prepared by The Compressed Air Society and The Hydraulic Society of the United States. The Compressed Society, Composed of fifteen American manufacturers of pneumatic tools, and appliances has issued a pamphlet embodying the result of extended study and research on the part of the executives and engineers associated with the member companies. It embraces the accepted nomenclature and terminology relating to air compressors and their operation, with appropriate definitions ; a history of the development of speeds of air compressors ; an explanation of capacities and pressures ; a description of the low pressure nozzle test recommended by the Society ; instructions for the installation and care of air compressors, suitably illustrated, and recommendations for their lubrication ; illustrations of the standard A.S.M.E. air receivers and a list of standard sizes of air receivers ; pneumatic tool standards ; numerous tables that will be of assistance in the treatment of various compressor problems ; and a list of applications of compressed air.

The Hydraulic Society, embracing in its membership 38 of the leading pump manufacturers of the United States has also issued its book of standards ; a collection of pertinent technical, engineering and commercial pump data. It recommends standard definitions, terms and practices. It is believed that a general adoption of the recommendations in these "Standards" will be of mutual advantage to the purchasers and users of pumps, and the engineering profession, as well as to the pump manufacturers, also by both buyers and sellers as governing transactions where nothing to the contrary has been established. Both of these publications can be obtained from the secretary of the societies, Mr. C. H. Robatach, 90 West Street, New York City.

# Sino-Japanese Amity

## American Financial Policy in China Demands End of Anti-Japanism

REFLECTING conservative American opinion, THE FAR EASTERN REVIEW has for the past year, emphasized the urgent necessity of an amicable adjustment of outstanding Sino-Japanese misunderstandings as the basis of China's reconstruction. American capital will not flow into China as long as there exists the possibility of a crisis in Sino-Japanese relations. The experience of J. P. Morgan & Company with the proposed South Manchuria Railway Loan and the subsequent attempts on the part of the Chinese to block the National City Loan to the Oriental Development Company, have convinced American bankers that it is impossible to deal with China as long as these Manchurian questions remain a source of friction. Peace, good-will and a mutual understanding between China and Japan must precede any large investment of American capital in China.

Even avoiding the political considerations, China *can never* become a safe investment market as long as there is always the immediate possibility of trouble between China and Japan. This is business, not politics, but the fact must be apparent to those who have China's interests at heart, that the sooner the reconstruction of the country is put on a business basis, the sooner, genuine reconstruction will begin. It is fatal to believe that there can be any prospects for the sale of China's bonds abroad, as long as the Kuomintang organization continues to boycott Japan, for according to the constitutional basis of current China, the Kuomintang is the Government; therefore, it is, in effect, the Government which is conducting an anti-Japanese movement. This is bad business and bad international politics.

The interests and policies of Japan and the United States in China are identical. Both nations want an Open Door for the expansion of their commerce. Japan has certain special and legal rights in Chinese territory which she is bound to protect, in the same manner that the United States is determined to protect similar rights in the Caribbean. The day is long past when the Chinese can influence American opinion against Japan. The relations between those two countries have become so intimate that nearly one half of the foreign trade of Japan is now with the United States and from thirty to forty per cent. of American exports to China are destined for Japanese enterprises in this country. More than half a billion dollars of American money is invested in Japanese bonds and the Japanese are inviting Americans to invest in industrial and other domestic shares hitherto held as exclusive Japanese enterprises.

Ambassador Debuchi and His Family

It is of the utmost importance that the financial and commercial relationships between the United States, Japan and China be understood. China is admittedly a great potential financial and commercial market and it is because of these potentialities that the principal commerical and financial Powers show China every sympathy in her present difficulties, but a conflict between a condition and a hope can but lead to one conclusion. Japan presents the spectacle of a market in which Americans are making money, while China is still a hope—something which may develop favorably in time—but when will the time come ?

The recent annual dinners of the Japan Society and the China Society held in New York afforded an excellent opportunity for guaging the trend of American opinion. At the Japan Society's annual function, the guest of honor was the Japanese Ambassador, Katsuji Debuchi. The Mikado's new representative in Washington was sent there with a well-defined mission to cement the trade and financial relations between the two countries and bring about still closer co-operation in business. This is the essence of Japan's new diplomacy. The fundamental problem of Japan is how to take care of her rapidly increasing population. Ten or more years ago, certain elements in Japan hoped to solve the problem by conquest and colonization, but that idea has given place to a program of industrialization. This, in turn, means that Japan must seek outlets for her products in foreign markets. The future greatness and prosperity of Japan must therefore rest on a firm basis of reciprocal trade and friendly relations with all nations. Very appropriately, the reign of Japan's new Emperor has been named "*Showa*" the Era of Peace. This one word is the very essence of Japan's present outlook. Her existence depends upon the peaceful expansion of her industries and the enlistment of foreign capital in developing her resources. Ambassador Debuchi made this very clear to his American audience.

The most significant responses to his address came from Mr. Mortimer Schiff, of Kuhn, Loeb & Company, and Mr. George A. Vincent, President of the Rockefeller Foundation.

Messrs. Schiff and Vincent emphasized that the co-operation of the Chinese and the Japanese was most important in order to unify and restore China. Every country could co-operate with Japan in order to revive China, they said.

Mr. Vincent especially emphasized the Japanese endeavor for medical research in Manchuria, which was far from Imperialism, saying that all nations should co-operate with Japan and China in bringing about happiness in Manchuria.

At the annual dinner of the China Society held in New York under the presidency of General J. G. Harbord, Dr. Alfred Sze and Dr. C. C. Wu, China's representatives in the United States, spoke from the same platform, both maintaining that the "unequal treaties" were all that was holding China back. It is significant that Mr. Thomas Lamont of J. P. Morgan & Company answered the Chinese diplomats and denied that foreign control of China's internal affairs was preventing it from developing a democratic government. Mr. Lamont said that the first task confronting the Nationalist Government was to demobolize the vast armies to prevent their turning

*(Continued on page 551).*

# A Vindication of Japan's Commercial Honor

## The Sequel to Bombay's Vicious Attacks Upon Japan's Cotton Industry; Organization and Scientific Business the Secret of Japan's Success

## A British Official Endorsement of Facts Originally Advanced by the "Far Eastern Review"

*By Geo. Bronson Rea*

**When Japan signed the International Labor Convention of 1919 regulating the hours of work in cotton mills and abolishing the night shift for women and young persons, it cut the competitive power of her cotton industry in half. Had Japan ratified immediately the convention and enforced a new factory law based on its provisions, her textile industry would have been ruined. No signatory state was obliged to enforce the convention until it had been formally ratified, a purely voluntary matter for each government to decide. Should any government decide against ratification, no legal obligations rested upon it to enforce the convention. Having freely signed the convention, Japan felt that she was morally committed to carry out its provisions, but reserved to herself the right to delay formal ratification until such time as she could adjust herself to the industrial revolution created by the application of a new factory law. In order to live up to her humanitarian commitments and retain her competitive position in the cotton trade, Japan has been obliged to double the number of her spindles and increase her looms accordingly. When the Convention was signed in 1919, her total spindleage was 3,488,262. Since then, Japan has been working under heart-breaking handicaps to reorganize her industry and adjust her labor problem in order to apply the new factory regulations scheduled for enforcement in July of next year. Since 1919, to date, the Japanese mills have increased their spindles by 2,626,720, bringing the total up to 6,114,982, leaving 861,542 spindles to be installed within the next six months to equalize the handicap occasioned by the abolition of night work. It has taken Japan ten years to arrive at a point where she can safely enter the competition for world trade on a labor basis that places her alongside the most advanced foreign nations. This explains the boom that is now being witnessed in the expansion of the Japanese cotton mills ; the price Japan is willingly paying in order to give effect to humanitarian laws she accepted nine years ago.**

TWO years ago, the Bombay Mill Owners' Association passed resolutions denouncing Japan for all manner of unfair trade practices. The picture revealed by this campaign was remarkable. India is one of the great cotton-producing countries of the world, with a protected home market of 350,000,000 consumers capable of absorbing all the yarns and textiles its numerous mills and hand-loom industries can turn out. The Japanese, in their quest for raw materials, purchased one-third of the cotton crop of India, carried it to Japan where they spun it into yarns or wove it into cloth, shipped the finished product back to India, paid the 11 per cent. import duty, excise taxes and other dues levied for the protection of the home industry and undersold the Bombay mills in their own territory. In addition, the Japanese invaded and took away their nearby and profitable export markets in Africa and the Near East.

Steeped in the sharp practices that characterize Asiatic business methods generally, the Bombay mill owners assumed that the Japanese followed the same time-honored traditions. They raved, "reviled the street" and called upon High Heaven and the British Raj to witness the wickedness of the wily Japanese and demanded the imposition of a discriminatory tariff that would shut them out of the Indian market.

The Indian mill-owners had a plausible grievance. Although Japan had accepted the convention adopted by the International Labor Conference at Washington in 1919, regarding hours of work, she had failed to ratify it or put it into operation. The Japanese were working their cotton mills 22 hours a day in day and night shifts. Eighty per cent. of the mill-workers of Japan are female. The Japanese male, considers spinning and weaving as essentially feminine tasks and beneath his dignity. The textile industries of Japan are therefore entirely dependent upon female labor for their successful operation.

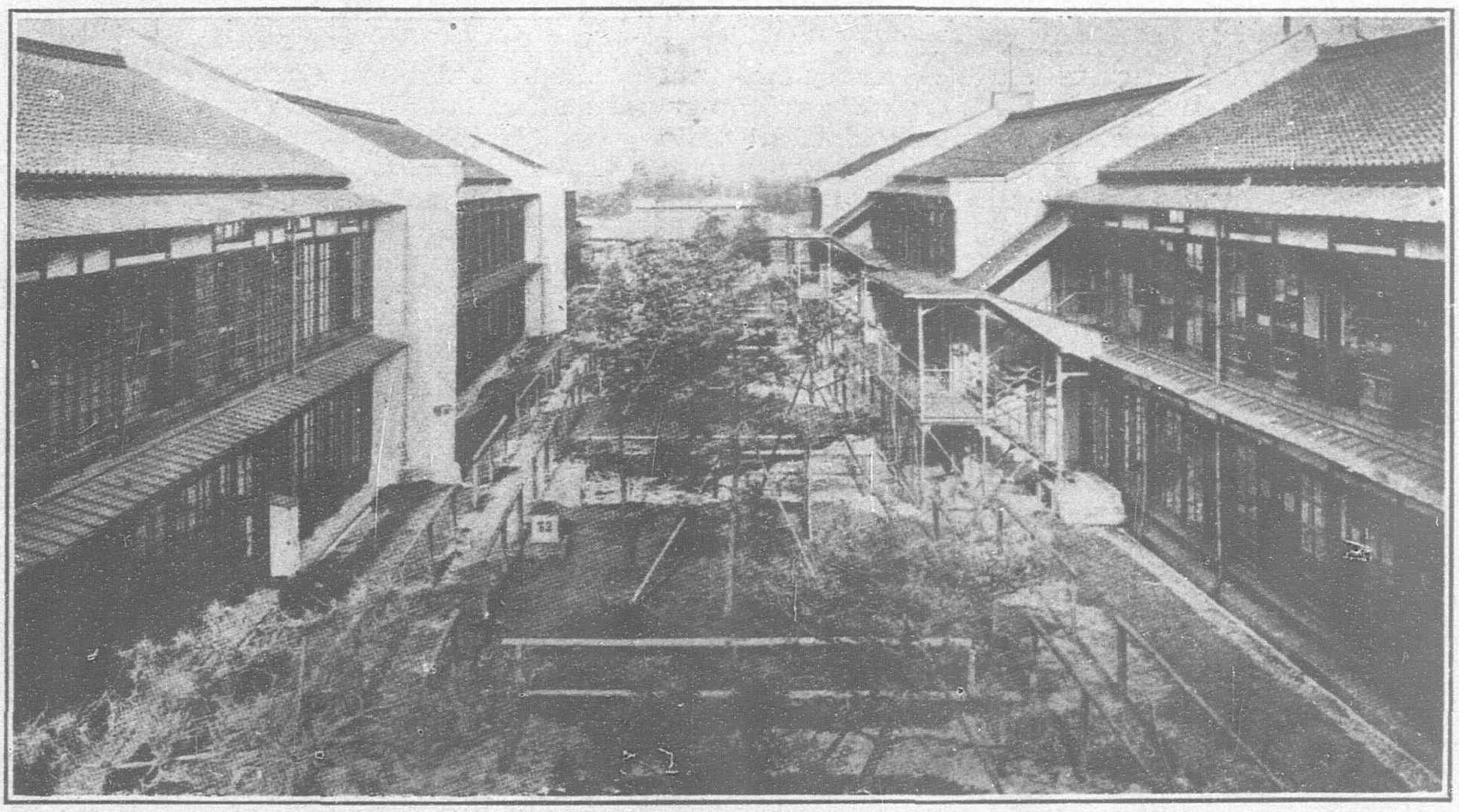
Here was something the Bombay mill-owners could make a case out of and they made the most of it. They declared that the women of Japan were sweated, underpaid, herded into unsanitary shacks, poorly fed, cheaply clothed, ruined in health and sent home from the factories moral and physical wrecks. The Japanese cotton industry they asserted was favored by high protective tariffs, tax exemptions, subsidies, secret rebates and other governmental assistance which enabled the products of its mills to compete successfully in the Indian market. The campaign was a vicious indictment of Japan's business methods, and morals, and the fight was carried even to the League of Nations in order to compel Japan to carry out her "international obligations."

### "The Far Eastern Review's" Report

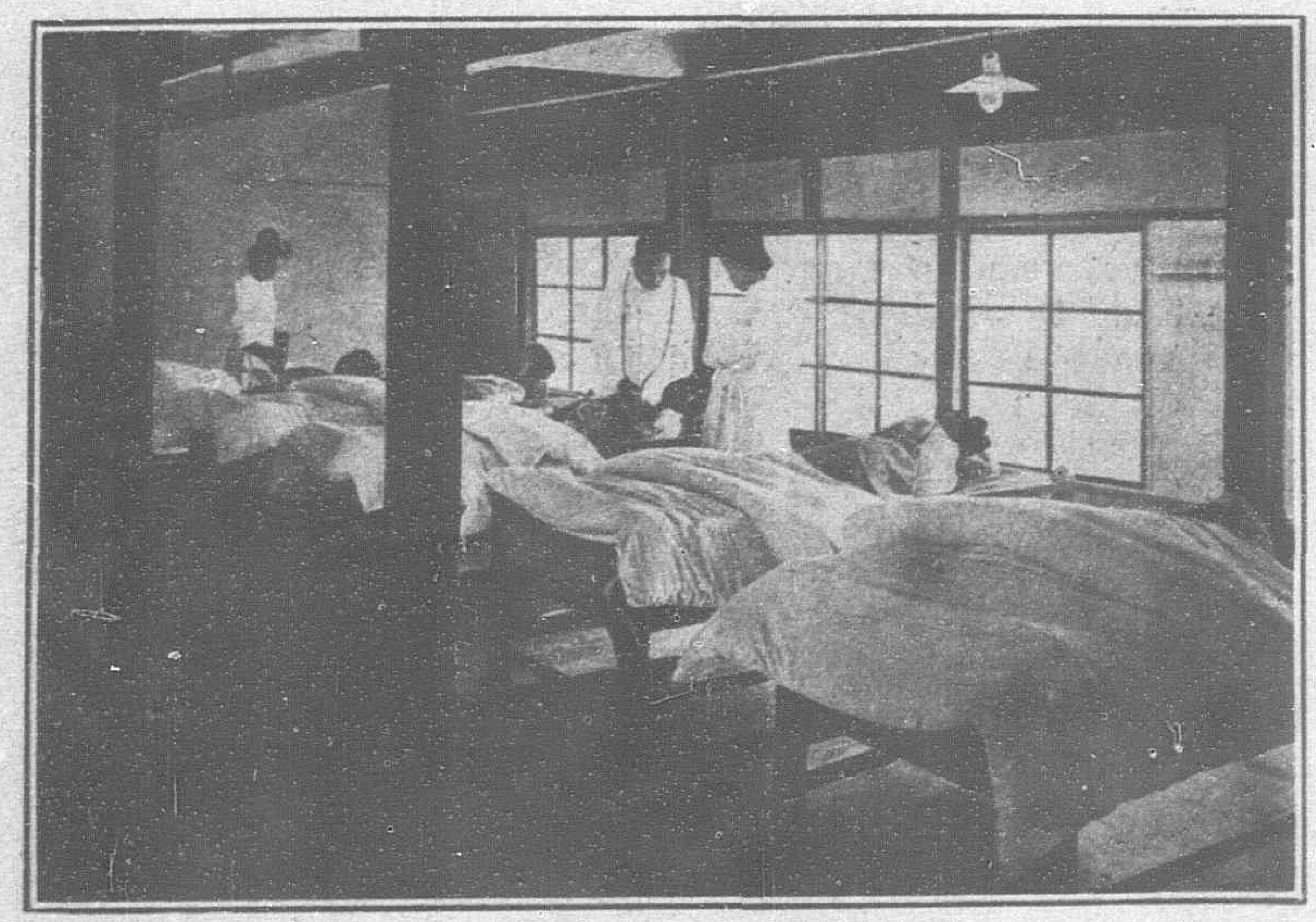
The Publisher of THE FAR EASTERN REVIEW, then in England, made a special visit to Bombay for the purpose of investigating conditions on the ground. It did not take long to ascertain outstanding facts which had been soft-pedalled by the Indian and British press. The Bombay mill industry, managed by Parsee and Gujrati directors and foremen, was honeycombed with nepotism, graft, mismanagement, disorganization, gross inefficiency, appalling dishonesty and an utter disregard for the first principles of humanity in its treatment of labor. The prevailing

Even the Kiddies are Made Happy. Every Large Cotton Mill in Japan has its Day Nursery and Kindergarten under charge of Competent Nurses who see that their charges are properly fed, amused and instructed.

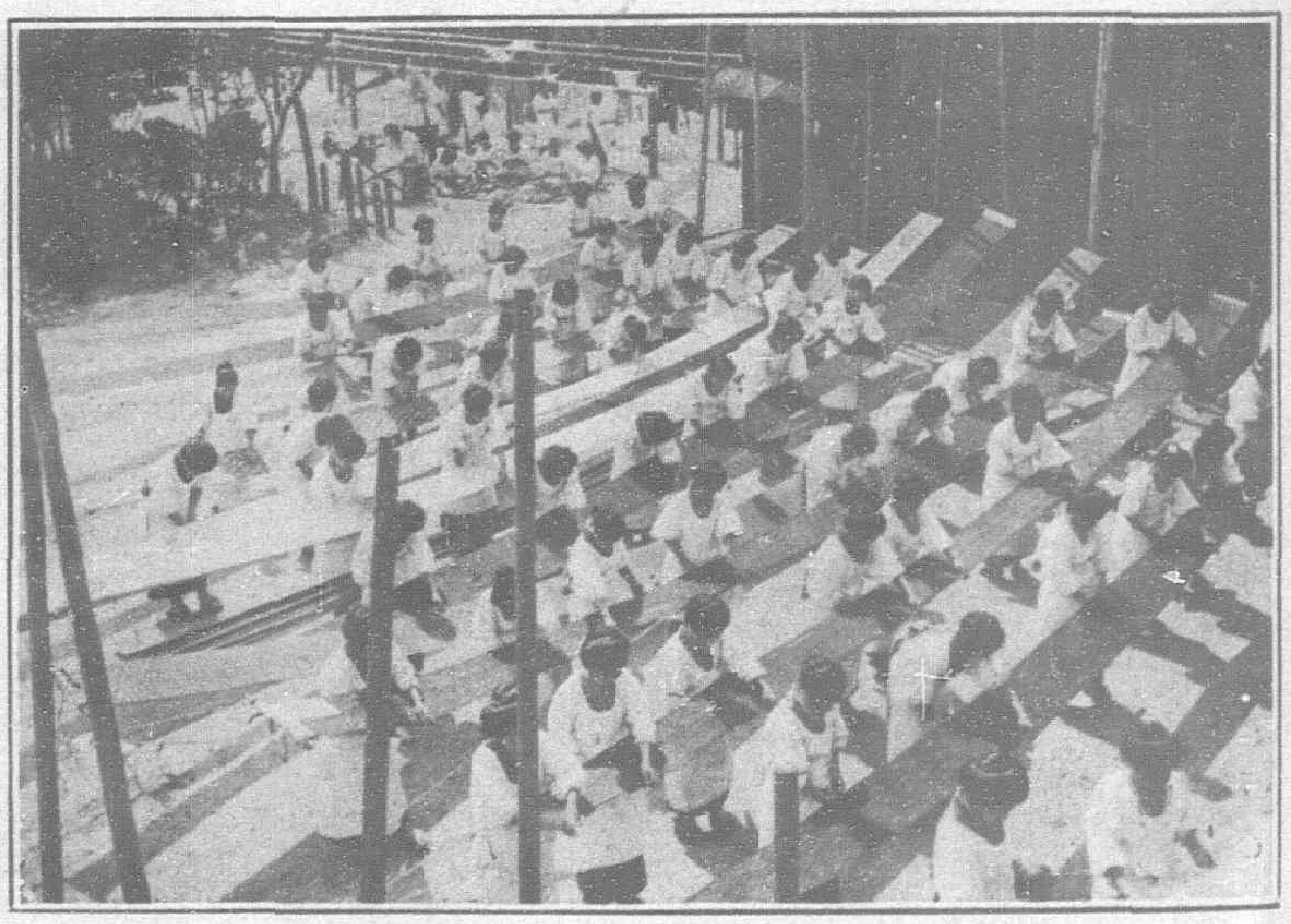
caste system in India makes impossible any humane treatment of labor under native management and the character of this labor (the most ignorant and debased in the world), makes difficult any betterment of its living conditions. After a month investigating the Bombay industry, it was not difficult to understand why Japan was able to compete successfully against such a system. In a series of articles published in the September 1926 number of THE FAR EASTERN REVIEW, he made it clear that Japan's success in India was due entirely to her superior business methods and organization. In this connection, he described the origin of the



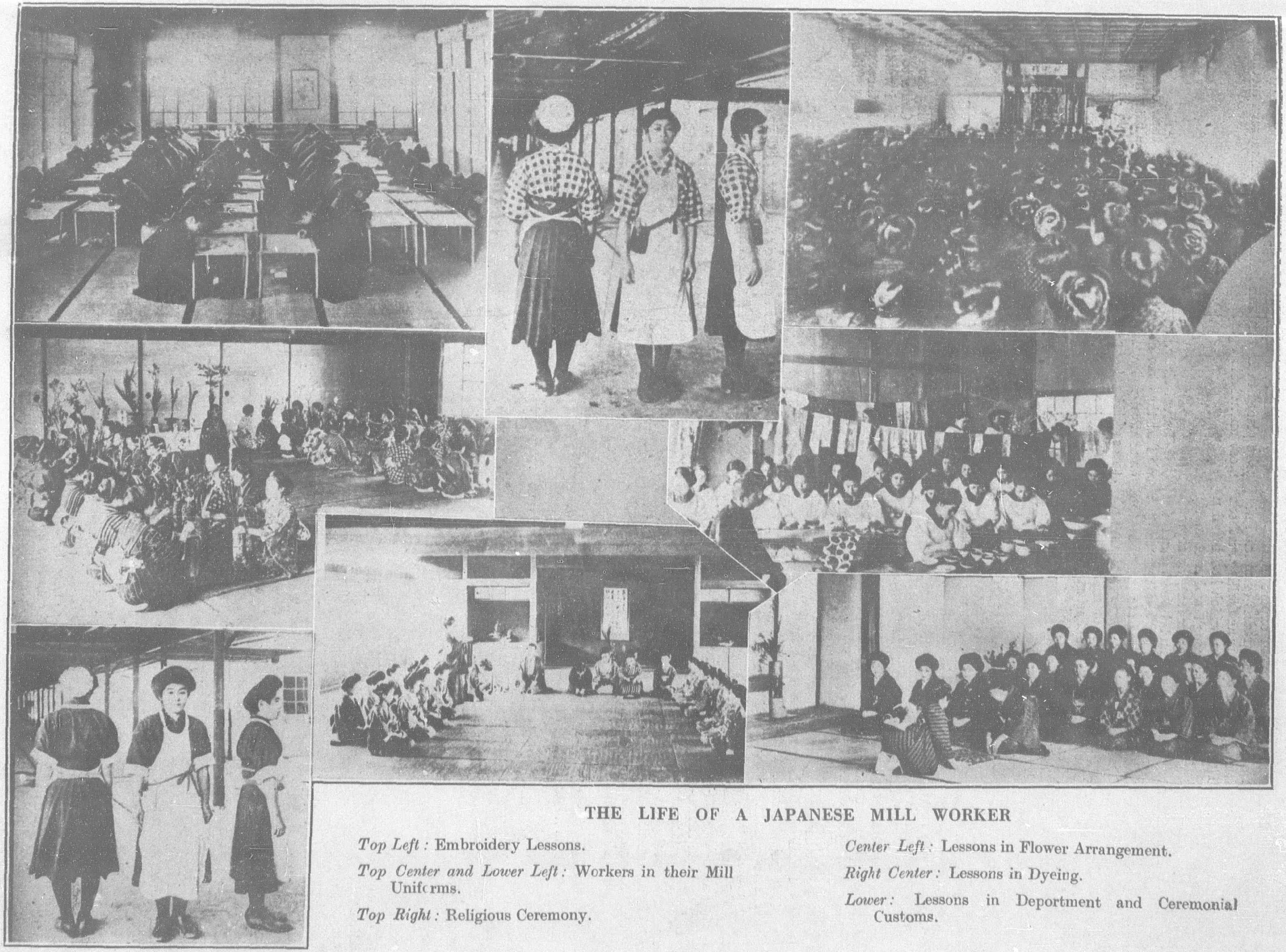
The Beautiful Female Dormitories of one of the Large Japanese Cotton Mills. Secluded, with its little park, scrupulously neat and clean rooms, with heavy concrete fire breaks between the typical Japanese wooden buildings, this dormitory is typical of many others in Japan.



The Women's Ward in a Japanese Cotton Mill Hospital. Every Mill in Japan has its hospital on the grounds with a full staff of doctors, nurses and apothecaries.



Mill Girls being Taught the rather delicate work of washing and Cleaning the Japanese Kimonos, most of which are silk.



THE LIFE OF A JAPANESE MILL WORKER

*Top Left:* Embroidery Lessons.

*Top Center and Lower Left:* Workers in their Mill Uniforms.

*Top Right:* Religious Ceremony.

*Center Left:* Lessons in Flower Arrangement.

*Right Center:* Lessons in Dyeing.

*Lower:* Lessons in Deportment and Ceremonial Customs.

Japan Cotton Spinners' Association and pointed out that "whatever success had been attained in building up an export market for Japanese yarn and piece goods, is the direct result of mutual aid and protection combined with organized buying and selling methods within the trade itself. "The earlier disasters which had befallen the Japanese industry had led to its thorough and systematic readjustment through reorganization of management, amalgamation of the mills and the creation of a mutual benefit fund for emergency allowances on exported goods. In addition to this complete organization of the industry he invited attention to the existence of the three purchasing and selling organizations with branches in all the producing and sales centers of India and elsewhere. As far as India was concerned, he emphasized the operation of the Japan Cotton Trading Company (Nippon Menkwa), and the Oriental Cotton Trading Company (Toyo Menkwa, a Mitsui subsidiary), which handled over fifty per cent. of the raw cotton exported from India to Japan and a large proportion of the imports of yarns and piece goods. Both of these companies, he pointed out, were backed by ample capital, and in the position to purchase raw material in large quantities whenever the market was favorable. An idea of the efficiency of one of these organizations was emphasized by the publication of a full page map showing over 160 cities and towns in India where the Oriental Cotton Trading Company had its gins and its permanent agents and representatives. Because of this widespread purchasing and selling organization, in all the principal producing and consuming districts of India, throwing them into intimate relationship with every class connected with the cotton industry from the raw product to the finished material and its marketing, he pointed out that Japan enjoyed the most unexcelled advantages over its competitors. In open competition against such scientific management the graft-ridden mill industry of Bombay stood no chance.

To our knowledge, this was the first time that any foreign investigator had invited attention to this remarkable phase of Japan's commercial development. It was only natural that this statement should invite comment and it was to be expected that objection would be taken to our conclusions by British writers. We will pass over the undignified attacks upon the Publisher of THE FAR EASTERN REVIEW indulged in by the editor of a British newspaper published in Japan, simply recalling attention to the controversy and the following words terminating one of his tirades:

"*It would be interesting to know what qualifications Mr. Rea has for comparing the efficiency of the Indian and Japanese mills. He must do Japan quite a lot of harm one way or another.*"

Setting up Exercises for Female Mill Workers.

## A Great Injustice

The Publisher of THE FAR EASTERN REVIEW, felt that a great injustice had been done to Japan by the circulation of the uncalled-for propaganda emanating from Bombay and endeavored by appealing to the facts to clarify the situation and absolve her from charges that no country could stagger under and preserve its commercial standing in the outside world. We are satisfied that the facts, as then presented by this magazine, served to stimulate the British into conducting an expert and painstaking investigation into all phases of the Japanese cotton industry in order to discover how with all the odds seemingly against her, Japan's cotton products could successfully compete with the older and more firmly established British industry in markets which, for generations, had been under their control.

In answer to Bombay's charges of inhuman treatment of her female mill operatives and all the other cooked-up and imaginary stories designed to discredit Japan, the Japanese Cotton Spinners' Association cordially invited the Indian mill-owners to send a committee to Japan as their guests to see for themselves how the industry was conducted. Japan had nothing to conceal and welcomed an investigation. Bombay declined to accept the invitation, preferring to wage its campaign of vilification on the strength of stories, which, if contradicted by unimpeachable evidence, woul have placed their own mill industry and commercial methods in most unenviable light.

## A British Investigation

Characteristic, however, of their traditional spirit of fairness, we find that the British have carried out on their own initiative an exhaustive investigation of Japan's cotton industry and, reduced to essentials, their findings constitute a complete vindication of Japan's commercial honor and a recognition that if the British industry is to survive in the intense competition for world markets, it must follow Japan's example in business organization or go under in the struggle.

At a meeting of the Manchester Statistical Society held in December last year, Mr. Barnard Ellinger, C.B.E., read a paper on the subject of Lancashire's Declining Trade with China," with special reference to the growing competition on the part of Japan. Mr. Ellinger, came to the same conclusion that THE FAR EASTERN REVIEW had arrived at the year before, summing up his address by urging Lancashire to become as enterprising and inventive as she was from 1900 to 1913 and attributing the two main causes of the loss of British cotton goods trade in China to the fact that while Japan had been enormously energetic in invention and enterprise, the British had been singularly lacking in those qualities as far as the cotton trade was concerned, failing to adapt the organization of the industry as a whole to changing conditions etc.

Shortly after Mr. Ellinger's address, the President of the British Yarn Association, Mr. J. L. Tattersall, reviewing the cotton spinning position for the year, called attention to the completeness of combination in the Japanese industry and urged the creation of similar organization in Great Britain. "The Japanese," Mr. Tattersall said, "place the buying of their cotton and the selling of their yarn in the hands of a corporation, and purchases are made in the cotton fields or at the gins, not only in the United States, but in East Africa, India and China and the ships which bring them the raw material carry manufactured products to the same markets....." Further on, he said, "it is obvious that the cotton trade of Great Britain attaches far too much importance to individual freedom of action. The day is past when each can get satisfactory results by isolated action, and the day for close co-operation has come."

The British Cotton Yarn Association followed the above statement by conducting a thorough investigation of the Japanese cotton industry and, as a result has recently issued an interesting and comprehensive report on its findings. The feature of this highly technical trade document which commands attention, is its frank recognition of the point made by THE FAR EASTERN REVIEW that Japan's superior business methods is the main reason why she has been able to compete successfully with British cotton manufacturers in their own markets. This official report stands out in sharp relief to the vicious anti-Japanese propaganda originating in India that was circulated in England two years ago and accepted at its face value by conservative British newspapers, who even went so far as to advocate the intervention of the League of Nations in order to penalize Japan for her "inhuman treatment of labor and to stop the transport of the products of sweated labor in other countries," etc.

## Lancashire's Unnecessary Handicaps

This report points out that the Japanese cotton industry, although dating from 1890, is already the greatest existing or potential competitor to any nation engaged in the export trade in cotton yarn and piece goods made possible by cheap and efficient water power supplies and her co-ordination of the buying of the raw material and distribution of the finished product. The

## THE CONTENTED MILL WORKERS OF JAPAN

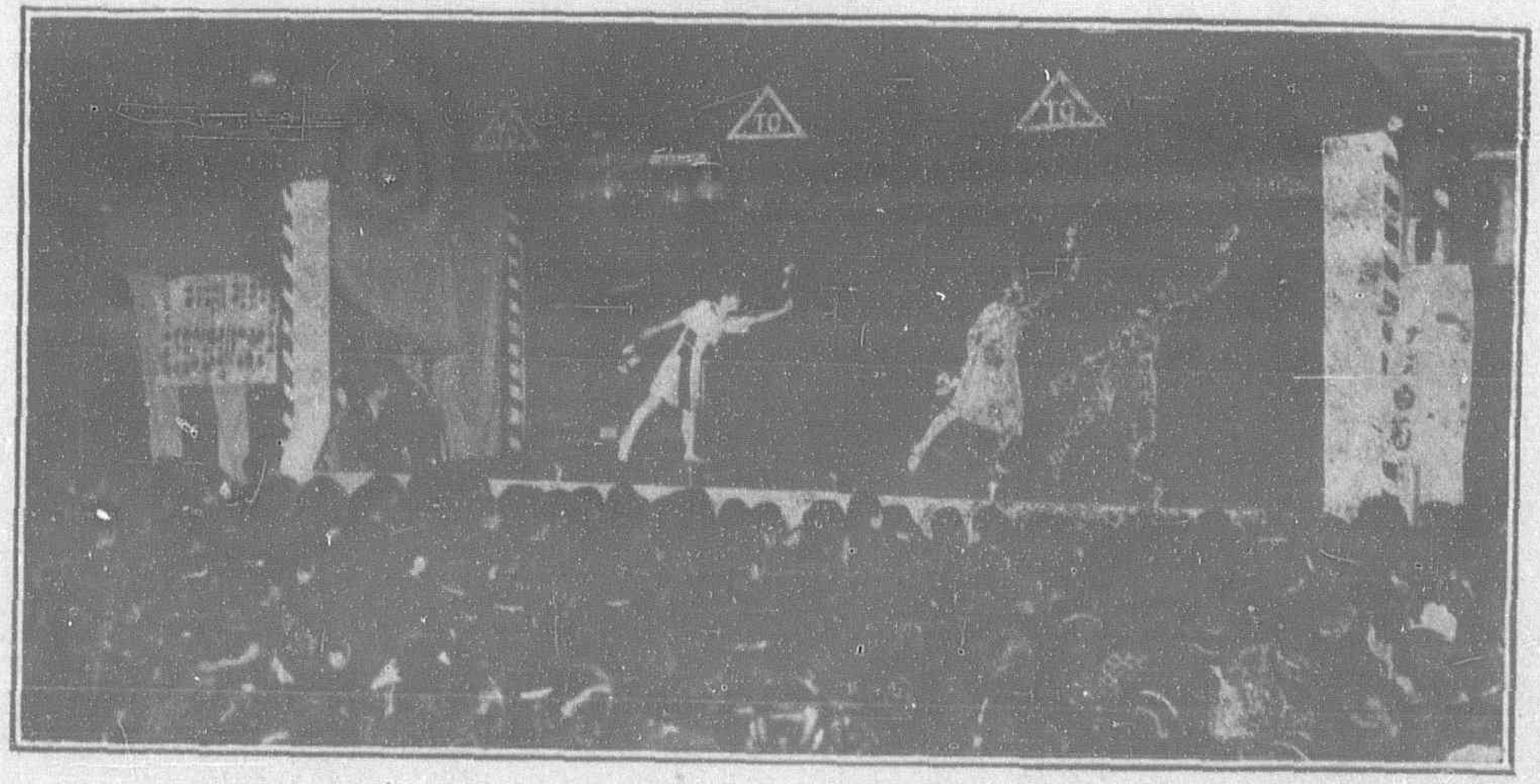
*Upper Left :* A Happy Group of Young Girls at Play in the Women's Recreation Grounds.

*Center :* A Typical Group of Female Mill Hands.

*Lower Left :* Amateur Dramatic Club of the Toyo Cotton Mills.

*Upper Right :* Young Girls in their own Recreation Grounds, Rehearsing a Play.

*Lower Right :* The Amatuer Dramatic Club of the Toyo Mills Giving a Performance Before their Companions.



rate of growth has been steady and continuous, and, contrary to many ideas, this rate was as fast before 1914 as it has been since. It is possible that the rate would have been slower after 1914 if the war had not given Japan the advantage of sheltered markets without competition, but it is to the credit of the Japanese that they seized their opportunity and developed in a most efficient manner the trade which was opened up for them. The energy and resource, which she has shown in entering new markets and exploring new channels is the greatest problem to which any competitor must give attention. Her bulk cotton buying and yarn and cloth selling, her close touch with the cotton fields and possession of her own gins, the "sampin" exchange, whereby all her yarns are graded and sold in relation to standards, the standardizing and mass production of piece goods, and the fostering of mutual trade with cotton growing countries by advantages to shipping lines, are all directions which can be followed to advantage and, indeed, should be followed without delay. Without them, Lancashire is carrying unnecessary handicaps, but handicaps, which granted the initiative, can be removed almost at will.

Referring to the purchase and shipment of cotton, the report explains that a regular monthly service of steamers to East African ports, largely with the idea of facilitating the transport of raw cotton from, and the export of Japanese cotton goods to, that part of the world, receives a subsidy of £40,000 per annum. The imports of East African cotton to Japan last year were approximately 30,000 bales. (It might also be said that in addition to the steamship services to East African ports, the Yokohama Specie Bank opened branches in Alexandria and Mombasa two years ago for the financing of the raw cotton and piece goods trade, thus putting at the service of Japanese traders their own banking facilities.) The report then touches on the central fact of Japan's superior organization by stating that 80 per cent. of the whole import of cotton into Japan is handled by three concerns. The business of these three firms consists of importing cotton and selling at home and abroad the manufactured article. Their paid-up capital is more than £6,000,000. These companies possess their own gins in the United States, East Africa and India, and also their own spinning and weaving mills. They buy their cotton from the farmers in all the cotton districts and are continually purchasing crop lots all the year round. They take mixed lots very readily, and, after a preliminary grading, ship the cotton immediately under their own arrangements directly to Japan. Competition between Japanese buyers for raw cotton is said to be almost non-existant and in no sense do they bid against each other. Where they are forced to employ local agents, the same procedure is adopted as far as possible.

After giving many details relating to production and costs, the report emphasizes that spinning and weaving companies in Japan do not, as a general rule, market their own products. They usually deal through exporters, the three principal of whom are the three large raw cotton importers referred to.

## Official Corroboration

With this array of expert evidence exonerating Japan from the malicious charges originated by the Bombay Mill Owners, it would seem that there is little more to be said. But on top of these statements clarifying Japan's position, comes another which must from its very nature carry the stamp of official approval. Mr. W. B. Cunningham, who, for some years, has been the British Consul at Osaka (the heart of Japan's textile industry) is exceptionally qualified to express an opinion on this subject. Mr. Cunningham has been transferred to Dairen and prior to leaving England for his new post, addressed a meeting of the China Section of the Manchester Chamber of Commerce which was also attended by the Joint Committees of the Cotton Trade Organizations.

As a matter of fact, the cotton industry of Japan has been the subject of a special investigation and reports to the British Department of Overseas Trade and although we have not seen this report it is fair to assume that the British Consul at Osaka was largely instrumental in compiling the data and, that his address before the Manchester Chamber of Commerce faithfully reflected the high points in the investigation carried out by the British Government.

Mr. Cunningham briefly traded the growth of the cotton industry in Japan and then referred to the Japan Cotton Spinners' Association. This association, which was formed about forty years ago, was one of the most important of its kind in Japan, controlling about 90 per cent. of the spindles and 40 per cent. of the power looms. Of the total number of members there were four of outstanding importance, ten rather smaller but still powerful firms and about 40 firms which, though relatively unimportant individually, in the aggregate contributed considerably to the prosperity of the industry. Mr. Cunningham, laid stress on the way in which the various interests were combined and concentrated. This, he considered, was one of the main reasons for the strength of the industry as a whole, since the large importers of raw cotton were also the principal exporters of piece goods and were more or less directly interested in the actual production of the goods.

Another cause of the strength of the industry was that labor conditions were simpler than in Great Britain. Mr. Cunningham's impression, however, was that there was not a great deal of difference in total production costs after allowance had been made for the greater number of operatives required in Japan, as well as the extra cost of housing, feeding, welfare, and recruiting from the country districts. The textile trade had an abundant reservoir of labor to draw from. Operatives did not, as a rule, stay long, the average term of service of female operatives being rather less than eighteen months. This system had an advantage in that in times of depression the position could be easily adjusted by relaxing the recuriting of new hands.

A further cause of the rapid expansion in the cotton trade was the concentration on standard lines, which were comparatively simple to make yet filled the demands of the markets which the Japanese were trying to capture.

A matter of importance was the increase in the manufacture of textile machinery. Looms had been made for many years, but until recently the manufacture of spinning machinery had not met with much success, though more attention was now being paid to this industry. Progress had also been rapid in other allied industries; the development of hydro-electric power had made rapid strides, as had also the manufacture of tools and machinery of all kinds.

As regards future prospects, said Mr. Cunningham, it should be realized that Japan had made industrialization a settled policy, and was determined to secure as large a share as possible of world trade. In regard to cotton there was a marked tendency to go on to finer goods, and during the last few years exports of yarn had declined owing to concentration on the manufacture of piece goods.

Mr. Cunningham referred to the new factory legislation which would come into force in July, 1929. This was causing the mills considerable concern. Whereas they were now working two shifts of ten hours they would have to confine their activity to two shifts of eight and a half net, and that only if they could obtain an extension of one hour, the possibility of which was provided for. In regard to wages he felt that there was more likely to be an increase than a decrease.

Summing up, Mr. Cunningham attributed the success of the industry in foreign markets not to the size of the individual unit, but rather to the way in which its resources were co-ordinated both through the operations of the Japan Cotton Spinners' Association and by the various combines within the industry.

Although only a voluntary body, the Spinners' Association, he said, commanded the loyalty of its members, each of whom reported the state of his business in considerable detail at stated times.

The Association also had a special agreement with the shipping companies by which rebate was paid to members on cotton shipped from Bombay.

But there were special advantages also, said Mr. Cunningham, in the degree to which rationalization had been carried in the industry. The concentration of certain of the spinning firms meant that they were able to buy cotton in large quantities and of the exact grade they required. Moreover, as the importers of the raw material were often also greatly interested in the export of piece goods, there was an implicit unity of purpose here which gave the industry as a whole a great driving force that was impossible in countries not so closely organized.

## Organization, Key to Success

Commenting on Mr. Cunningham's statements, *The Manchester Guardian* says ;

" It does not follow that every feature of the Japanese industry which is not to be found in Lancashire is one of the factors which have contributed to Japan's success, but any feature of this nature certainly deserves attention, for Japan has been able to build up her industry in the light of the experience of other countries where cotton spinning and manufacturing were established earlier, and it is reasonable to suppose that every departure from precedent has been made with some special purpose. If this view is taken, then the organization of the Japan Cotton Spinners' Association, to which Mr. Cunningham referred at some length, is worthy of study. The old belief that Japan's advantage lay in cheaper labor now finds few adherents, and traders are more likely to find the key to Japan's success in the organization of her industry, and especially, we believe in the organization of cotton-buying."

## The Welfare Burden

Two years ago, accompanied by Mr. T. Funatsu, Managing Director of the Japanese Cotton Mill Association in China, the Publisher of THE FAR EASTERN REVIEW spent two weeks visiting the cotton mills in the Osaka district. Twenty establishments were thrown open to our inspection and every part of the manufacturing end, dormitories and living quarters were visited. The outstanding impression carried away was the solicitous concern manifested for the comfort, welfare, happiness, education, amusement, recreation and protection of the female operatives. The extent and cost of the welfare burden attached to the Japanese cotton industry (in fact to all the textile factories) cannot be realized from any newspaper description of the system. Only by a personal inspection can the full extent of this feature peculiar to Japanese industrial life, be appreciated. It would require a volume to describe adequately and in detail all the ramifications of the system from the recruiting of the young girls in the agricultural districts to their apprenticeship in the mills and their final discharge in two years with sufficient savings to serve as a marriage dot. We might conclude this article with the result of our own investigations at that time or with extracts from the literature of the Japan Cotton Spinners' Association describing the Cotton Mills and Workers of Modern Japan, but it will carry greater weight if this final testimony exonerating Japan from the charges brought against her two years ago, comes from British sources.

*The Commercial* of London printed an article in its issue of August 9, entitled "The Welfare Burden of Japanese Cotton Mills." In an editorial foreword to the article. *The Commercial* says:

"Lancashire has learned to take a keen interest in conditions in the cotton mills of competing countries, and much of this interest is concentrated on the mills of Japan. Japanese competition has been severest in the Far Eastern markets, which mean so much to Lancashire, and it has been frequently asserted that cheap labor is at the root of Japan's success. The article which we print below suggests that this is far from being the case, since the inefficiency of Japanese labor and the very high expenditure which is required for what may be called "welfare" tend to offset the difference between the actual wages paid in Lancashire and in Japan. If this is true—and the gist of our contributor's remarks on this subject comprises little that has not been said before in official and semi-official reports—then the outlook for Lancashire in competition with Japan seems to be brighter. The Japanese mills have not been doing very well for several months, and our correspondent suggests that their troubles have been increased by the legal necessity of maintaining their labor for some months after the time when it became apparent that some rduction of staff was called for. In addition, it must be remembered that night-work is to be abolished next year, so that the slight advantage from the working to two shifts will disappear, and it is probable that there will be a positive disadvantage in the fact that individual mills, unless they have doubled their spindleage and are able to retain the same number of workers as they have at present, will be saddled with twice as much welfare accommodation and equipment as their staff requires."

"The most striking part of the account, in our view, is that which states that Japan's chief competitive advantage emanates from the successful buying of raw cotton. This is an aspect of cotton spinning and manufacturing to which far too little attention is paid in Lancashire, though it must be admitted that a lot of mills have not sufficient resources to be able to engage in dealings in the raw material on the most advantageous terms. But, even so, buying of raw cotton is a business which should be studied much more carefully, and our contributor, in the following article, has done a good service in drawing attention to it."

## Facts About "Sweated Labor"

Describing a visit to the mills of the Fujigasu Spinning Company and, after devoting some space to their equipment and output, the correspondent says:

The question that is interesting Lancashire to-day is why Japanese mills are able to continue making profits when Lancashire mills are forced to work short time, and even then are run at a tremendous loss. The Lancashire factory owners lay a great deal to the charge of "sweated labor" in other countries and high wages in their own, and nowhere is there said to be more "sweated labor" than in Japan. What are the facts?

Before considering the question of labor conditions, there is one exceedingly interesting fact to notice with regard to the profits made by Japanese mills. I was told by the manager of the mill that the actual spinning and weaving business was showing no profit at all, but only just making both ends meet. All the profits are being made on successful buying of raw cotton. The buyers have evidently managed to judge the raw cotton market correctly, and their profits have come solely from their luck or good judgment in buying raw cotton at the moment when it has stood at its lowest. Instead of selling it again they have used it to keep their mills going, but the result is the same as if they had been gambling in raw cotton and their luck had held. They have added nothing to their profits by manufacturing yarn and cloth in their mills. But even to have shown no loss in this is something which has not been known in Lancashire for the last few years, and even successful buying of raw cotton has been offset by a loss in its conversion into yarn and cloth. What is it that makes Japanese mills more successful than our own to-day? Is it cheap labor?

The number of operatives employed in the Fuji mills is 5,872, of whom 1,554 are men and the rest "girls." They work in two shifts, one from 6 a.m. till 5 p.m. (with an hour's rest during the day), and the other from 7 p.m. till 6 a.m. (also with an hour's rest). In other words, there are two ten-hour shifts. Now here at once British employers of labor will ask "How can we be expected to compete with factories which have a ten-hour day?" And it seems that they have a very good case. But I was informed by the manager of this Japanese mill that there are twice as many operatives per thousand spindles in his mill (and, presumably, therefore, in other Japanese mills) as in British mills. If this fact is taken into consideration a very different state of affairs arises. Though from the worker's point of view the hours are as long, from the point of view of the employer they are only half the length. In ten hours the operatives only do as much work as British workers do in five hours, so that the employer is only getting the value of a five-hour day. Naturally these figures may be rather exaggerated, but it is probable that the employer certainly does not get more than a seven-hour day's value in work, which is considerably less than the value obtained by the British employer from his operatives. So much for the question of hours.

## Paternal Care of Female Workers

The question of wages is far more complicated. At first sight it seems that the Japanese workers are grossly underpaid. The men get approximately £5 and the girls just over £3 a month. There are also a number of girls (nearly 3,500 out of 4,500) who get the same wage and are also boarded in dormitories, for which advantage they have to agree to a two years' contract. But we must consider the "extras" that the Japanese workers receive. There is first of all, a compulsory health insurance, as in England, towards which the employer contributes 4 per cent. of the wages he pays and each worker 4 per cent. of the wages he or she receives, while the Government gives 10 per cent. of the total final cost per annum. But this is nothing peculiar to Japan. What are peculiar are the almost paternal care taken of the workers and the laws regulating their dismissal. In this factory there are, first of all, the dormitories. The girls in these, besides getting free board in exchange for a two years' contract, are able to buy their food from the firm at a cost of 30s. a month instead of 40s., which is the cost of food for the non-dormitory employees. Being right out in the middle of the country the firm has to arrange for the whole supply of food for the operatives, which is in itself a tremendous business. Those operatives not in dormitories have a dining-room separate from that of the dormitory girls, in which they can eat either their own food or that which they buy from the firm, which provides a kitchen for them. But besides getting free board and cheap lodging the dormitory girls get their wages in advance, so that the company cannot dismiss them suddenly without losing all the money it has advanced.

But both dormitory girls and other employees have certain further provisions made for them. There is a hospital with 10 doctors and 35 nurses, and the operatives and people living round about can receive treatment at one-tenth of the normal cost. There are free schools of one-year courses which children between 15 and 20 can attend. If they attend these they are required to do six hours' study, and are only made to do two hours' work a day in the factory while their one-year course lasts. There is also a free technical school which has a two-year course of four hours a day (with four hours' work in the factory). It can thus be seen that the operatives are well looked after both from the point of view of education and physical comfort, and that the company expends considerably more on them than the amount which appears on the wage bill.

## Dismissing Workers an Expensive Proposition

But the most interesting as well as the most costly part of the extras spent by the company on their workers is that necessitated by the system of "notice." A slump in England is followed by wholesale dismissals of workers, as the factories cannot afford to keep on the same number of employees as in the prosperous seasons when demand is greater than supply. But in Japan this is not the case. Every employer of labor has to give his employees either so much pay or so much "notice" before dismissing them. The amount varies with the length of time the man has been employed. For every year that he has worked for the firm he must get either a month's notice or a month's pay. Thus it can be seen that it is rather an expensive proposition for a Japanese employer to order wholesale dismissals of his operatives. It is better for him to keep them on during the bad seasons than to dismiss them and re-engage them or engage others when trade recovers. This rule, of course, gives an incalculable degree of security to the Japanese workman. But it costs the Japanese employer considerable sums of money, all of which must be added to his total wage bill when comparing it with that of his British rival. The amount is, of course, difficult, if not impossible, to estimate, varying as it does with the degree of prosperity of the trade. But the time when it hits him most is undoubtedly that when trade is at its lowest ebb, as at present.

It can be seen that the "extras" which employers of labor in Japan have to incur add much to their production costs. It is true that there are many small cotton mills in Japan which lack many of these amenities for the workers. Factory inspection is not on the same level as in England and those factories which have fewer than 100 employees escape it entirely. But it is the large and successful cotton mills which are our main competitors, and it is they who are said to capture our markets by "sweated labor." What I want to emphasize is that the charges levelled against Japanese employers by the Lancashire employers are most misleading. I visited a well-known Japanese factory expecting to find thousands of workmen living under conditions worse than those in Britain during the middle of the nineteenth century. I found in all I visited, and more particularly in the cotton mill, that labor conditions were, in their own way, as good as or even better in many respects than those in England, and that the final cost of labor was little, if at all, below that prevailing in British factories and mills.

## British Adopt Japanese Methods

That the British cotton trade has at last woke up to the fact that Japan's success is due entirely to her superior business organization and that only by combining along the same lines can it hope to hold its own in competition, is clearly shown in the following Reuter's dispatch from London dated November 16;

**The Eastern Textile Association, Ltd., the directors of which are all prominent in the Lancashire cotton-trade, representing 50 firms, has been formed to compete against Japanese manufacturers in the textile trade in China.**

**The new Company will carry on business as spinners, doublers, manufacturers packers, shippers, bleachers, calico-printers, dyers, finishers, calender merchants, importers, exporters and dealers in all descriptions of cotton, calico, linen, silk, worsted and woollen textile fabrics. It is hoped by means of mass-production to meet Japanese producers on level terms.**

## A Complete Vindication

So we come to the end of another anti-Japanese campaign which for several years was waged by the Indian and British press against a commercial competitor. The evidence exculpating Japan from the charges of unfair competition, sweated labor, inhuman treatment of women and other unethical practices, coming from British sources, is final. That the British cotton trade has seen fit to follow the example of Japan in co-ordinating its manifold activities under an organization specially designed and incorporated to compete with Japan, is a high tribute to the business efficiency and commercial integrity of a nation that only a few decades ago emerged from a feudal era to enter upon a career of industrial activity.

It seems a pity that the facts brought out by the British investigation of Japan's cotton industry came too late to influence the Indian Government's decision on tariff revision for, notwithstanding every honorable effort of the Japanese to answer and counteract the campaign waged against them, the Indian Legislative Assembly last year passed a tariff bill raising the import duty on the coarser grades of yarn to a point which shuts the Japanese products from the Indian market. The reason set forth for this tariff revision by the Indian Government is, "*the prevention of unfair competition from Japan.*"

## Who Pays the Price?

Who is the loser? Last year, Japan purchased more than half the raw cotton exported from India, valued at Y.320,000,000, or one-third of the total cotton crop of the country. Nine million Indians are employed in cotton cultivation in India. Three million are therefore engaged in growing this staple for the Japanese market. The export of Japanese cotton yarns to India is scarcely ten per cent. of the value of the raw cotton purchased by Japan from India, but in order to protect the Bombay mills against a competition representing Y.30,000,000, the Indian Government has invited a loss in the export of raw cotton that in time may have a more disastrous effect on the economy of the country than the slight, temporary advantage extended to a group of poorly located and mismanaged mills.

The effect of this discriminatory tariff against Japan (on grounds that have since been proven false by British investigators) depriving her of the Indian market for low grade yarns, will be to drive the Japanese mills to the spinning of finer counts and the weaving of high grade piece goods that must find export outlets in competition with Lancashire. It means further, that Japan will increase her purchases of American and Egyptian cotton and, as she adjusts herself to the manufacture of high grade goods, her importations of coarse Indian cotton will correspondingly decrease. This is exactly what is happening and although the fight for new markets in competition with Lancashire will be a stiff one, there is little doubt that in the long run, Japan will make progress. Whatever gains made by Japan along these lines must be at the expense of Lancashire. It is too early to hazard an opinion as to the ultimate reaction of India's discriminatory tariff upon her own prosperity. These things have a way of adjusting themselves. For many years, Japan has been importing over 200,000 tons of pig iron from India, providing an outlet that has contributed to the continuous and profitable operation of India's heavily subsidized steel industry. The erection of new blast furnaces in Japan increasing her pig-iron producing capacity by 700,000 tons annually and the contract entered into with the Australian Iron & Steel Company for the delivery of 10,000,000 tons of ore in the next ten years, would seem to indicate that it is not always good policy to intentionally insult and penalize a customer whose purchases have done so much to build up the prosperity of a country, especially when the same products can be as readily obtained from other sources.

## Sino-Japanese Amity

*(Continued from page 542).*

to banditry. The meaning of this statement, coming from the leader of the American banking group, will not be lost on the Chinese. We pointed out in our last issue, in the article devoted to "Sun Fo's Tremendous Task," that the first step towards rehabilitations and inspiring confidence in foreign bankers, was to hand over to the Minister of Railways the direction of all lines now held by the various militarists. Mr. Lamont tells the Chinese the same thing in another way.

Mr. Lamont and Mr. Schiff are members of banking firms which are leaders of the American Group in the Consortium. Both are familiar with Far Eastern affairs, because both firms have participated in large Far Eastern financial operations. Both have an interest in the development of both Japan and China as markets for American investments. Only a moron could refer to either as pro-Japanese or pro-Chinese: in their positions, men do not view large problems emotionally; they appraise their facts with judicial accuracy, for an error in judgment may have a serious effect upon the investment public, which purchases bonds guaranteed by the probity and financial wisdom of these houses. That is essentially the problem. As long as there is the constant probability of friction between China and Japan, an investment in China securities is unsafe. That is the essential purport of the remarks of Mr. Lamont and Mr. Schiff and the more seriously-minded Chinese leaders should give every attention to them, for ultimately it will be the Houses of Morgan and Kuhn, Loeb which will determine what the United States is to do for China.

## Cebu Wharf Contract

THE Atlantic, Gulf and Pacific Company of Manila will be awarded the contract for the construction of a reinforced concrete pier and marginal wharf at Cebu, if the recommendation made recently, by A. D. Williams, director of the bureau of public works, is followed by Filemon Perez, secretary of commerce and communications, saye the "Manila Bulletin." The amount involved is approximately P.1,144,000.

This recommendation was made in spite of the fact that Hua Hin, a Cebu contractor and Gotauco and company of Manila had both submitted bids lower that of the Atlantic Gulf and Pacific company. But considerations of the experience and possession of the requisite equipment for the proposed extensive work caused the bureau to reach the decision in favor of the Atlantic, Gulf and Pacific company.

Unlike the Iloilo wharf the contract for the building of which was awarded recently to Tan C. Tee, the Cebu work has to be performed in an unprotected port where particular equipment and experience are required. The decision of the bureau was reached only after careful investigation had been made regarding these qualifications of the three lowest bidders to meet the conditions believed necessary to complete the work successfully.

The Atlantic, Gulf and Pacific Company has a reputation of long standing as builder of pier works. The company has full equipment necessary in undertaking the construction of projects like this proposed pier and marginal wharf.

The construction of this project is made possible by the sale of P.3,000, 000 of bonds in the United States some months ago. The Legislature authorized the province of Cebu to float bonds for the improvement of the Cebu pier works.

The complete bid of the Atlantic, Gulf and Pacific Company calls for the amount of P.1,111,650. The project will be finished within 750 days. This amount excludes the price of rock materials which will be needed in the construction of the project, however, the Atlantic Gulf accepts to include the rock work at cost plus 15 per cent., the entire costs not to exceed to P.4.50 per metric ton. Hua Hin, the lowest bidder offered to undertake the job for P.979,000, for 500 days and Gottauco and Company, the second lowest bidder offered P.987,800, for 712 days.

The five concerns participating in the bidding on the project and their entire estimates follows; Pedro Siochi, P.1,150,000, for 740 days; A. G. Yankey, P.1,144,000, for 640 days; Atlantic Gulf and Pacific Company, P.1,111,650, for 750 dyas; Gotauco and Company, P.987,800, for 712 days; and Hua Hin and Company, P.979,000, for 500 days.

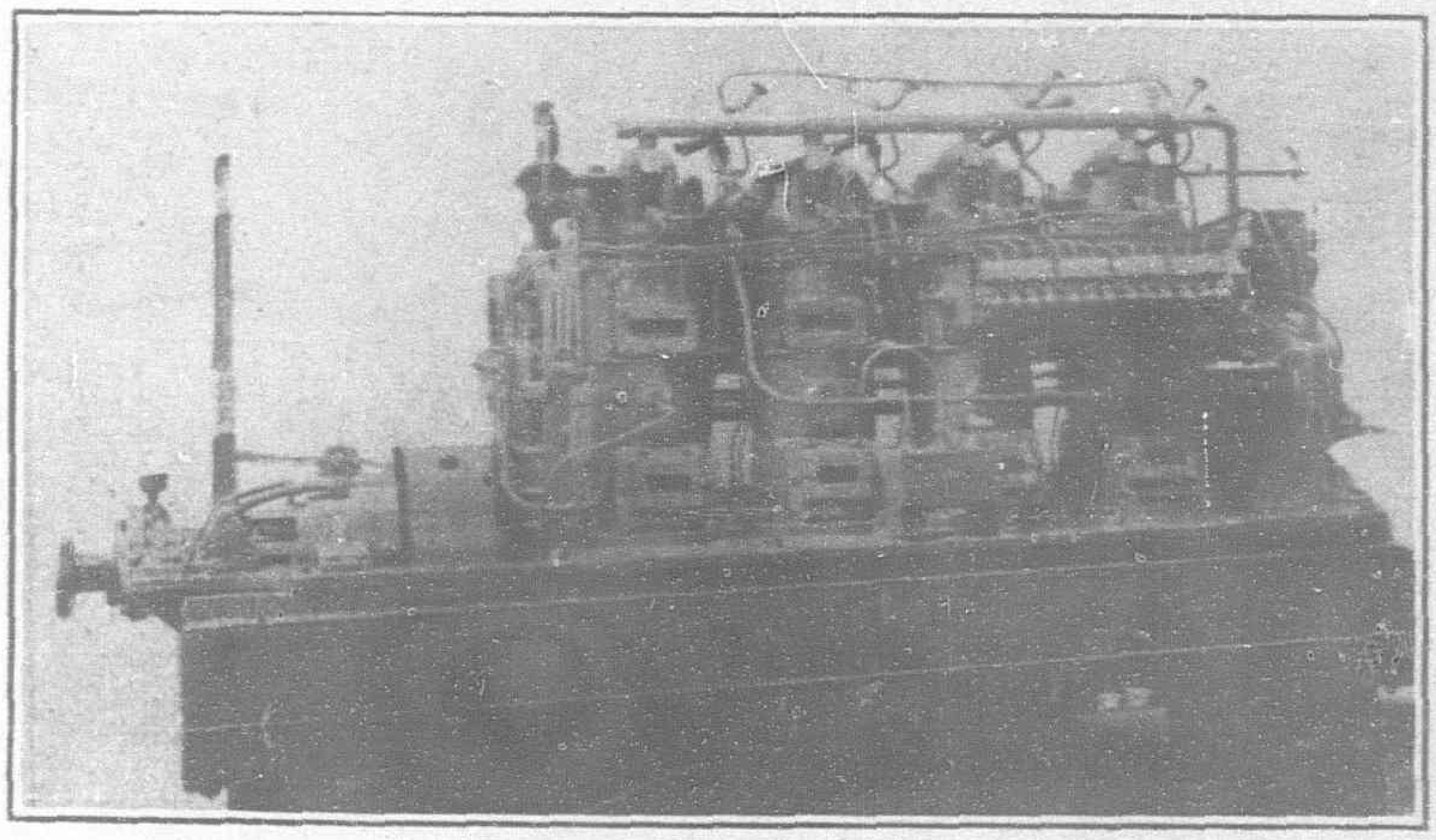
The contract for this project consists of the following: A reinforced concrete pier 155.45 meters in length and 33.30 meters in width supported by 615 reinforced concrete piles, including timber walling, timber fender system, two fender clusters composed of 9 cresoted piles, 17 fender clusters composed of 7 cresoted piles, two mooring posts, 17 mooring bitts, water pipes and fittings, and the placing of the asphaltic concrete pavement.

The work in the marginal wharf calls for furnishing all materials, labor and plant and constructing complete at Cebu, a reinforced concrete marginal wharf 198.39 meters in length and 189.39 meters in length and 18.10 meters in width supported by 338 concrete piles, including pre-cast concrete slabs, timber walling, timber fender system and several mooring posts.

## New Development in Petter Marine Oil Engines

An interesting extension has recently been made to the series of Petter Marine Oil Engines, by the introduction of the NT type made in two, three and four cylinder units of 18, 27, and 36 b.h.p. respectively.

A twin screw set of crude oil engines of this type has just been completed for a ferry boat for the Egyptian Government authorities. The craft is a steel boat 60-ft. by 10-ft. beam and 2-ft. draught, with a semi-tunnel stern. A speed of 12 to 14 kilometres is expected by the Egyptian Government. The power units are of the latest Petter NT type, and are four cylinder sets arranged symetrically about the center line of the hull, with the direction of rotation outwards. It is interesting to note that these 36 b.h.p. units were tendered for and accepted in preference to the slower speed twin cylinder sets of the same power (which are also made by Petters Limited) on account of the restricted draught. In the new engines the overall dimensions and also the drop from the shaft line are reduced, the smaller cylinder units lending themselves to this.



Petter Marine Oil Engines

In the new NT type engines although the general principles are the same as those in previous Petter Marine designs, a number of new features are incorporated. The engines are arranged for instant starting from cold by means of electric heating plugs working in conjunction with a new design of rotatable fuel sprayer. The sprayer is so designed that at starting the oil spray is directed directly onto the hot coil of the heating plug. After the engine has been running a few minutes the vaporiser portion of the cylinder head reaches a temperature sufficient to carry on ignition, and the nozzle is rotated by the operator by means of a small lever, so that the oil spray impinges on this hot surface. Current for the heating plugs is generated by means of a small dynamo driven by gears on the forward end of the engine, which charges a six volt battery.

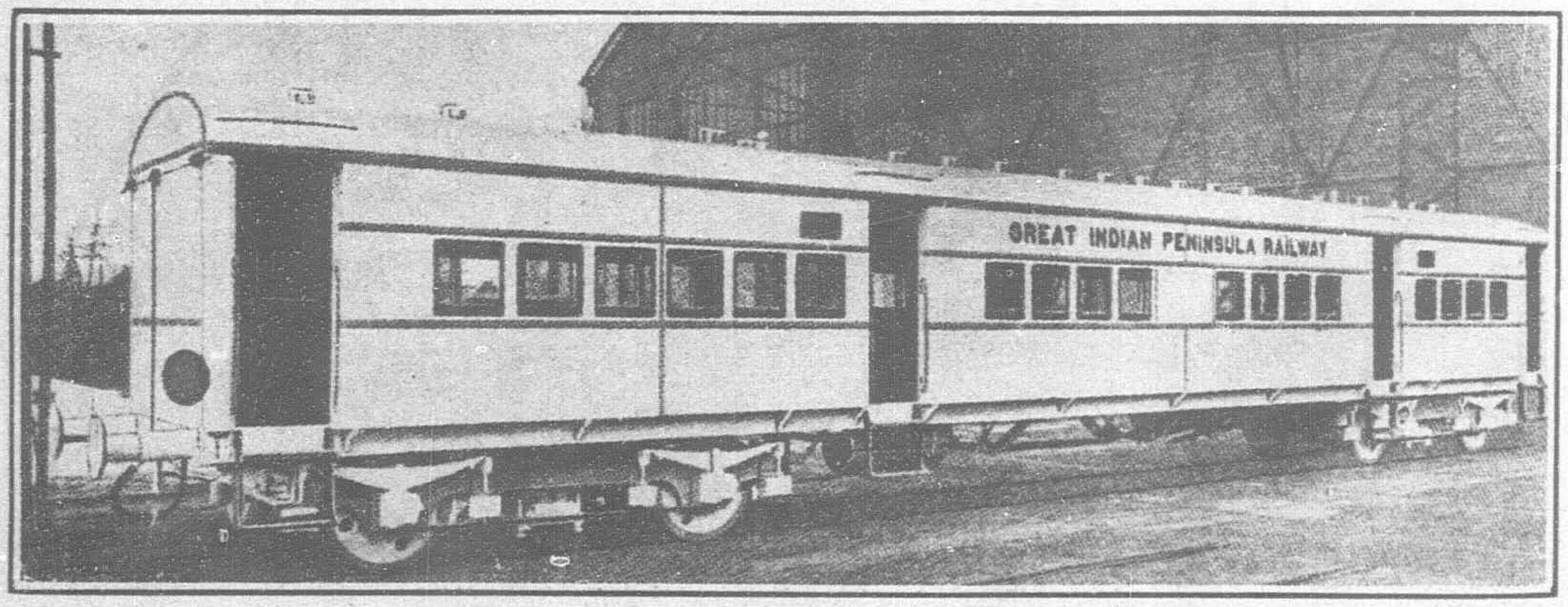
Other auxiliaries fitted include starting air compressor, rotary starting air distributor and bilge and circulating pumps, both of which are of the double acting type. Rapid starting blow lamps are fitted as a standby.

The engines are built to comply with Lloyds and Admiralty requirements.

# Asiatic Railway Development

## New German Corridor Coaches for India

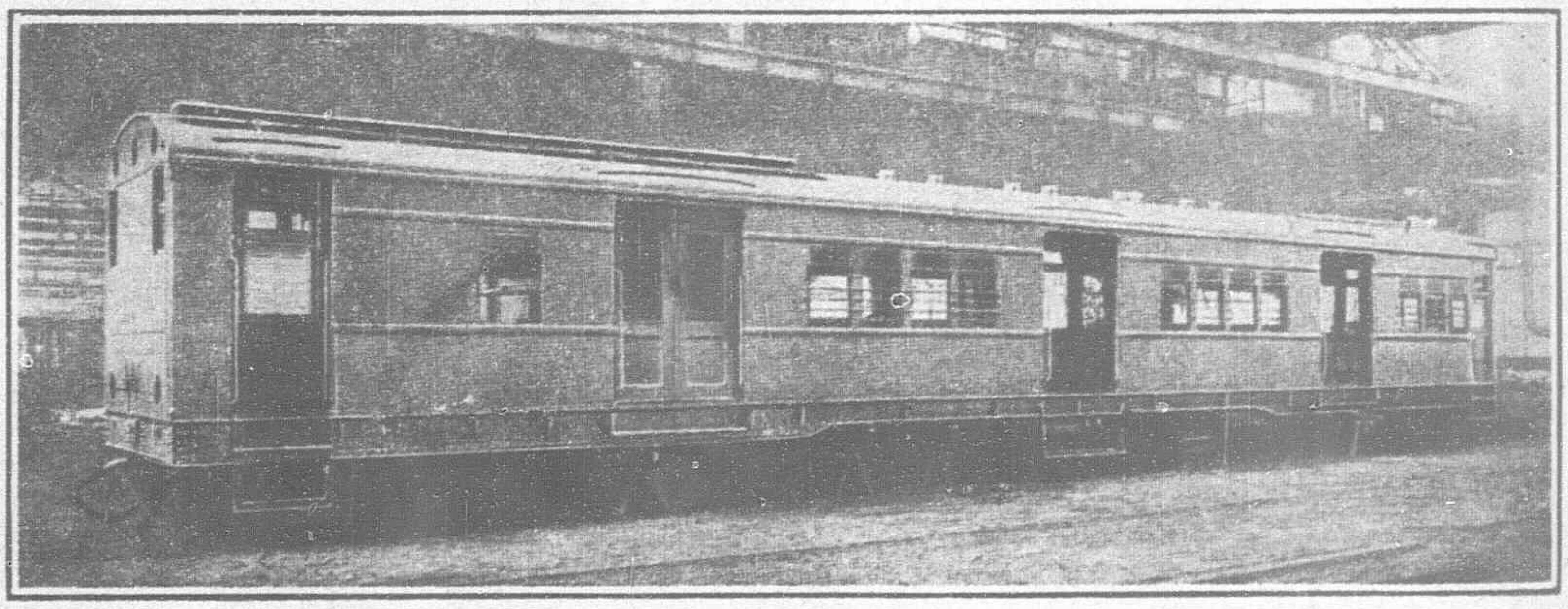
THERE have recently been completed, by the Waggonfabrik A.-G., of Uerdingen, 64 large steel corridor coaches, for the Great Indian Peninsula Railway Co. The gauge is 1,670 mm. (5-ft. 5¾-in.) with an overall length of about 22 m. (72-ft.) and a width of about 3 m. (10-ft.). The interior height from floor to edge of ceiling is 2.5 m. (8.2-ft.), the total height from top of rail to roof 3¾ m. (12.3-ft.). The whole of the manufacture was carried out in accordance with English measurements instead of the metric system.



German Steel Corridor Coach for the Great Indian Peninsular Railway

On account of the tropical conditions under which the coaches will be run, special provision had to be made for protection against the sun. The windows are thus very small and fitted with external louvered shutters, while the carriages have double side walls containing a thick insulating layer of asbestos. The roofs are of the special tropical or sun-protection type, in which a current of air flows between an inner and an outer shell.

Ventilation is effected by a system of roof fans. The interior fittings are of teak, and the floor, which is of corrugated sheeting, composition covered, is absolutely insect-proof—an important consideration in the tropics.



German Motor Coach for the Bombay Suburban Electric Services

In the construction of these coaches particular attention had to be paid to the question of shipment. Underframe, roof and body were each therefore made in three parts, while the bogies could be shipped complete. The degree of accuracy of workmanship called for can be judged from the fact that it was specified that the corresponding portions should be absolutely interchangeable so that no work of any kind was to be done on them, when assembling in India.

These 64 corridor coaches have been for some time in service now and are giving complete satisfaction. A number of further coaches of equally large dimensions, are at present under construction at the Uerdingen Works. They will be used as motor coaches for the Bombay suburban electrification scheme. The motors, on account of their size and of the utilization of high-tension direct current (1,500 volts), are placed in special compartments.

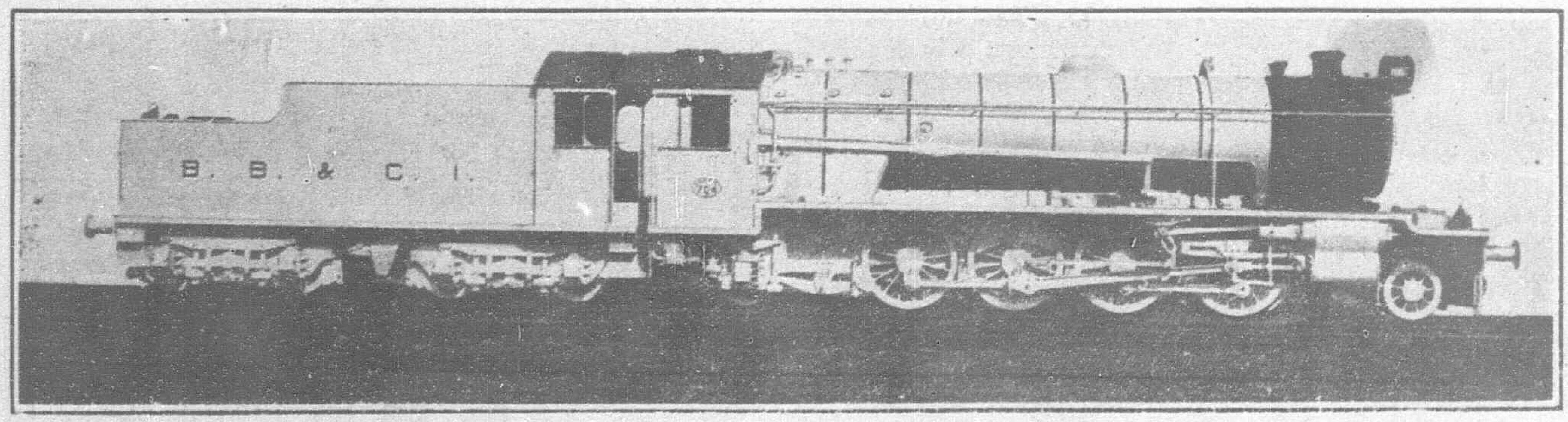
It may be of interest to add that a State train for a mountain railway is being built to the order of the Maharajah of Gondal for his personal use upon hunting expeditions in the mountains. All parts of this train have been designed in Germany.

## New Vulcan Superheater Goods Locomotive for India

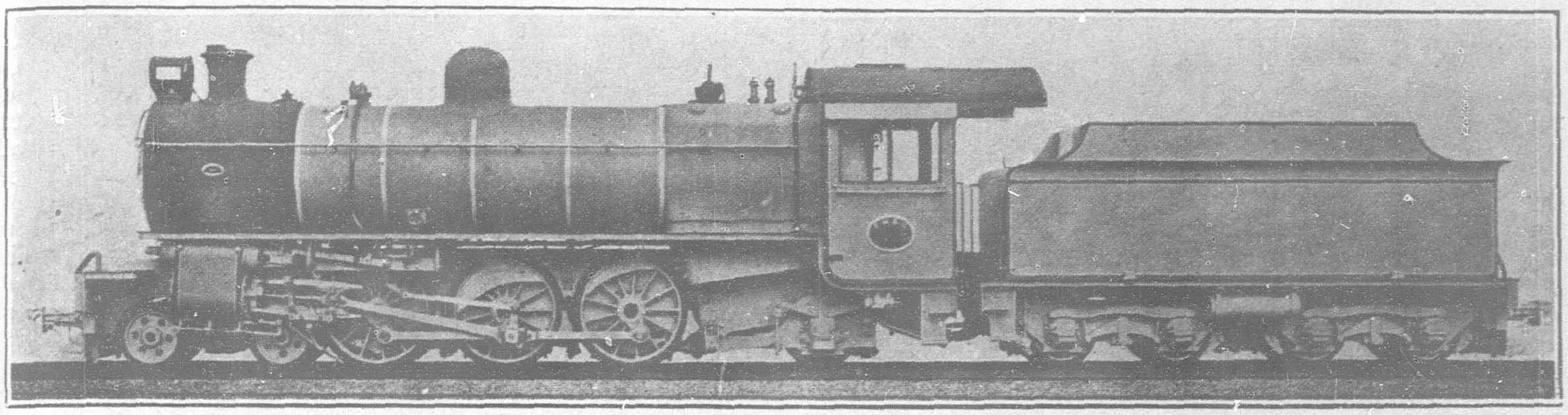
The bottom picture is of the new XD class superheater goods locomotive, two of this 2-8-2 type having recently been added to the B. B. & C. I. Railway rolling stock.

The new engines have been built to the design of the Locomotive Standards Committee by the Vulcan Foundry Co., Ltd., Newton-le-Willows, Lancashire, under the supervision and inspection of the Consulting Engineers, Messrs. Rendel, Palmer & Tritton. Several engines of the same type have also been supplied to other railways in India.

It will be noticed that in general design these locomotives conform closely to the "M" type of goods engines, which were ordered by this railway as a trial in 1922 and of which two have been giving



New Superheater Locomotive for B. B. and C. I. Railway, Built by the Vulcan Foundry, Ltd.



New "K" Class Locomotive for the F. M. S. Railways, Built by the North British Lomomotive Co., Ltd.

satisfactory service during the last three years. Most of the special features of our "M" class engines, which were then quite new to Indian Railways, have been adopted by the Locomotive Standards Committee for the new standard type of engines for Indian Railways and the B. B. & C. I. Railway may legitimately claim to be the pioneer in their development in India and, as usual, to have taken the lead.

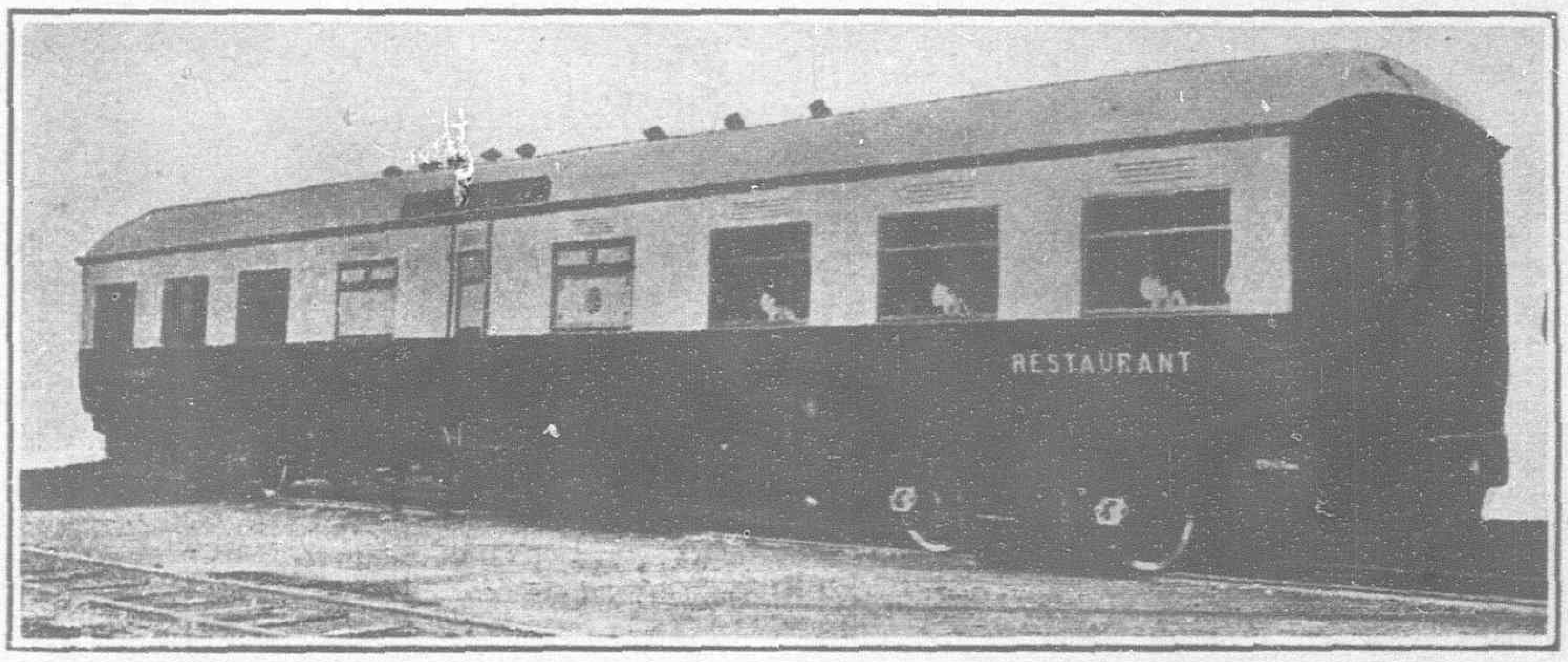
These engines are now stationed at Rutlam and are used for hauling heavy goods trains up the steep gradients met with on this section, without the assistance of a banking engine.

A new feature of this engine is the springing of the coupled wheels. Auxiliary rubber bearing springs have been fitted to ensure easy running.

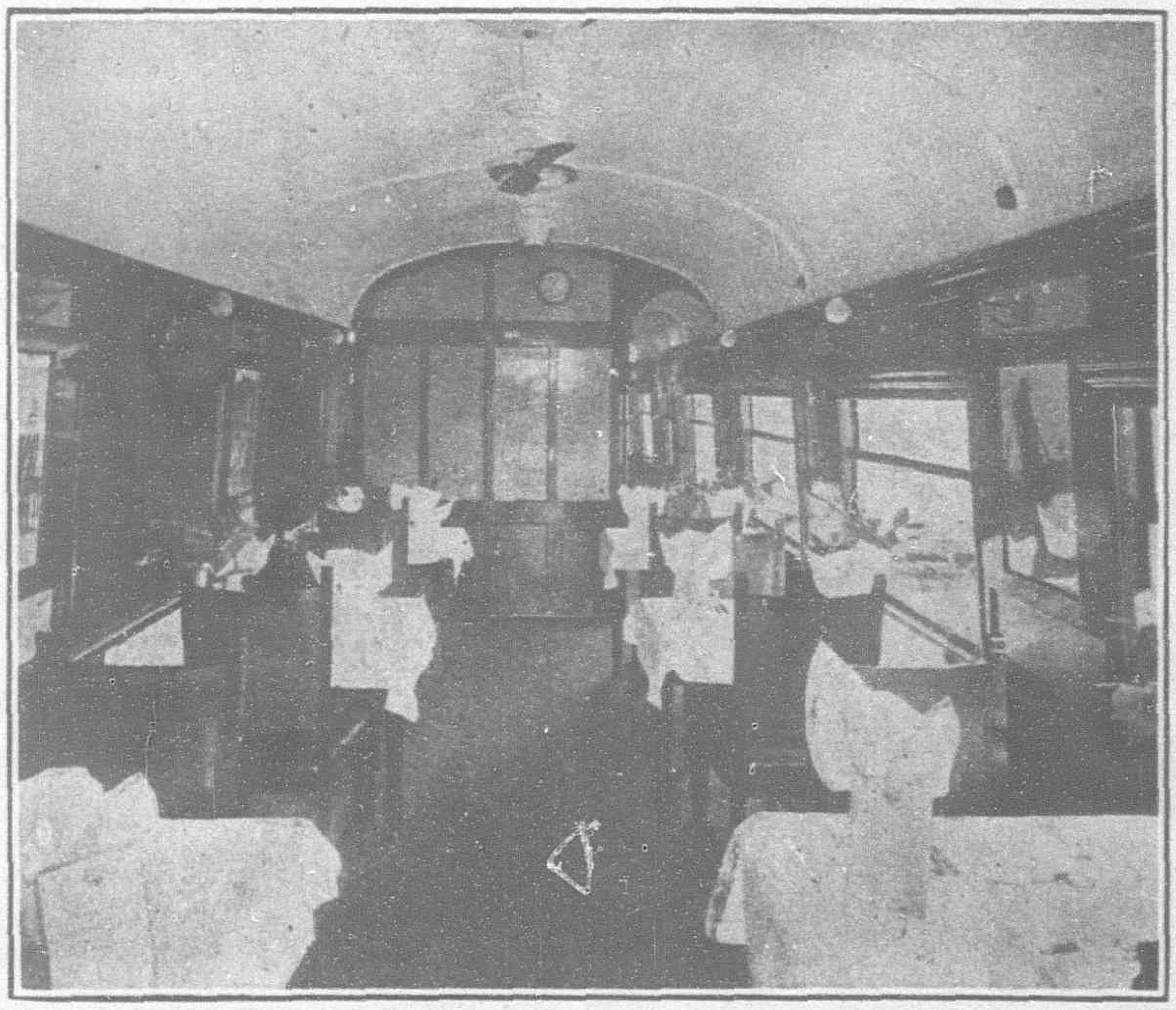
The weight of the engine and tender in working order is 161 tons, 10 tons of coal can be carried in the tender and 4,500 gallons of water. Owing to the great length of the engine and tender together—over 76½-ft.—it has been necessary to construct new turntables 85-ft. in diameter, as the original turntables were too small to take the tender as well as the engine.

The boilers of the new XD class engines have been specially designed to burn what is known as second class coal, and for this reason a very large grate area is required. The new engines have a grate area of 45 sq. ft. as compared with 32 sq. ft. in the case of the present "G" class goods engines.

The working pressure of the boiler of the XD engines is 180 lbs. per sq. in. and is fitted with a superheater of the M. L. S. type, supplying steam to the cylinders which are 22½-ft. dia. by 28-in. stroke through 12-in. dia. inside admission piston valves, the valves being operated by Walschaert motion. The coupled wheels are 5-ft. 1½-in. dia. which gives a tractive effort of 35,260 lbs. at 85 per cent. boiler pressure.



Restaurant Car Built at the F. M. S. Central Workshops



Interior of Restaurant Car for F. M. S. Railways

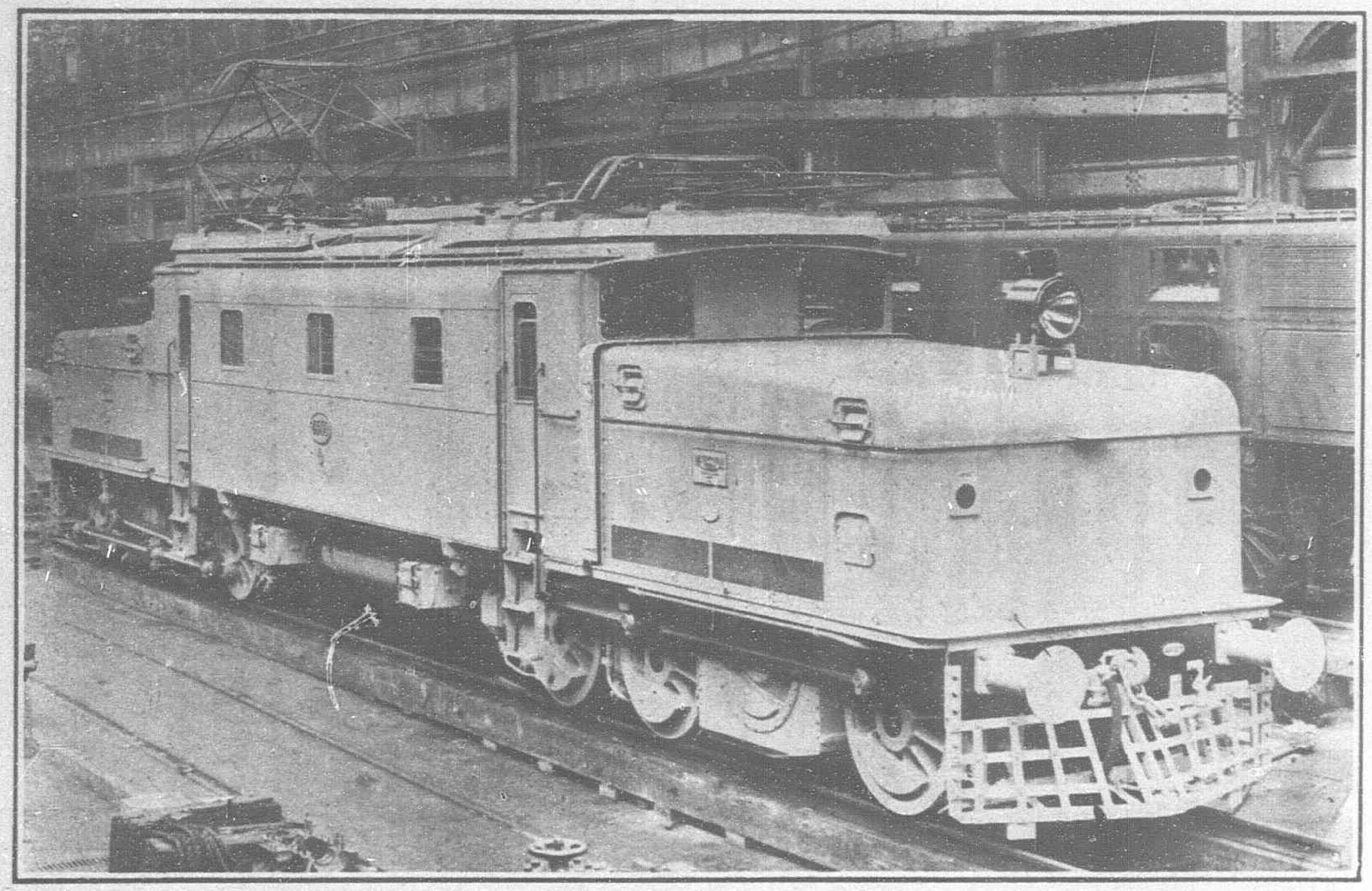
# New F.M.S. Railways Rolling Stock

The report on the Federated Malay States Railways for the year 1927 reveals intelligence in every department and the prosperity which flows naturally from efficiency.

The excess of revenue over expenditure amounted to $3,606,012 a great falling off from the $6,427,445 reached in 1926 but that is discounted by the fact that the railway was involved in an abnormal expenditure of $1,523,727 by the floods of December, 1926, and January, 1927, which swept away parts of the permanent way, buildings, etc., which had to be restored. In addition to this, considerable arrears of re-sleepering had to be overtaken and that cost $909,220. There is therefore nothing alarming in the reduced surplus. The receipts exceeded those of the year before by $1,414,940, or 6.54 per cent. but the revenue expenditure shows an increase of no less than 27.85 per cent., $19,449,503 against $15,213,100.

The floods at the beginning of the year were disastrous and apart from destruction of works, the disorganization to construction work was most serious. Immediately before the flood, the operations on the east coast line extended from Chegar Perah to Krai, a distance of 112 miles. Throughout this length construction camps were wholly or partially destroyed, stores were washed away or damaged to such an extent as to render them useless. Temporary and permanent structures were destroyed, isolating sections of the line. After the water had receded the scene throughout the line was one of desolation and chaos. The damage done, was very great, and will result in the completion of the line being delayed.

Three new British-built locomotives have been placed in operation on the main Malayan line between Singapore and Gemas. The main line trains sometimes consist of 15 bogie coaches and with



The First of the 41 Metrovick 2,600 H.P. Electric Freight Locomotives for the Great Indian Peninsula Railway

locomotives at present used, whose axleloads do not exceed 12 tons, this necessitates what is called double heading.

It was, therefore, decided to introduce engines of sufficient tractive power to operate a 15-coach train without assistance, and an order for three locomotives which fulfil the necessary requirements has recently been carried out by the North British Locomotive Company. The engines are now being assembled at the Central Workshops, Sentul. To permit of their employment it has been necessary to strengthen the bridges and permanent way on those parts of the line which were not suitable for axleloads of 16 tons and a programme of work of this nature has been in operation for some time past and is so far completed that the new locomotives will be able to run between Singapore and Gemas as soon as their assemblage has been effected and the trial runs have been successfully performed. In about 18 months' time it will be possible to run them as far as Kuala Lumpur and it is the intention of the F.M.S.R. to run them with all the chief mail and goods trains as soon as possible.

Having regard to the limits of width, height, and weight, the design of an engine which would suit the purpose of the Malayan railway authorities was not a simple matter but difficulties have been overcome and a most interesting type of locomotive has been evolved. The work has been executed by the North British Locomotive Co., Ltd., of Glasgow, to the order of the Crown Agents with the Colonies, and in compliance with the general requirements of Mr. A. W. Sutherland-Graeme, of Kuala Lumpur, Locomotive Superintendent of the F.M.S. Railways. The type adopted is that of three-cylinder engines with a 4-6-2 wheel arrangement.

# Metrovick Electric Locomotives for the Great Indian Peninsula Railway

The two Metrovick locomotives shown in the accompanying photographs are of exceptional interest in that they illustrate one of the most important recent developments in British electric locomotive construction. They are respectively for freight and passenger service on the main lines of the Great Indian Peninsula Railway, from Bombay to Igatpuri and to Poona and have been erected and equipped by the Metropolitan-Vickers Electrical Company to the specification of Messrs. Merz and McLellan, consulting engineers for the scheme.

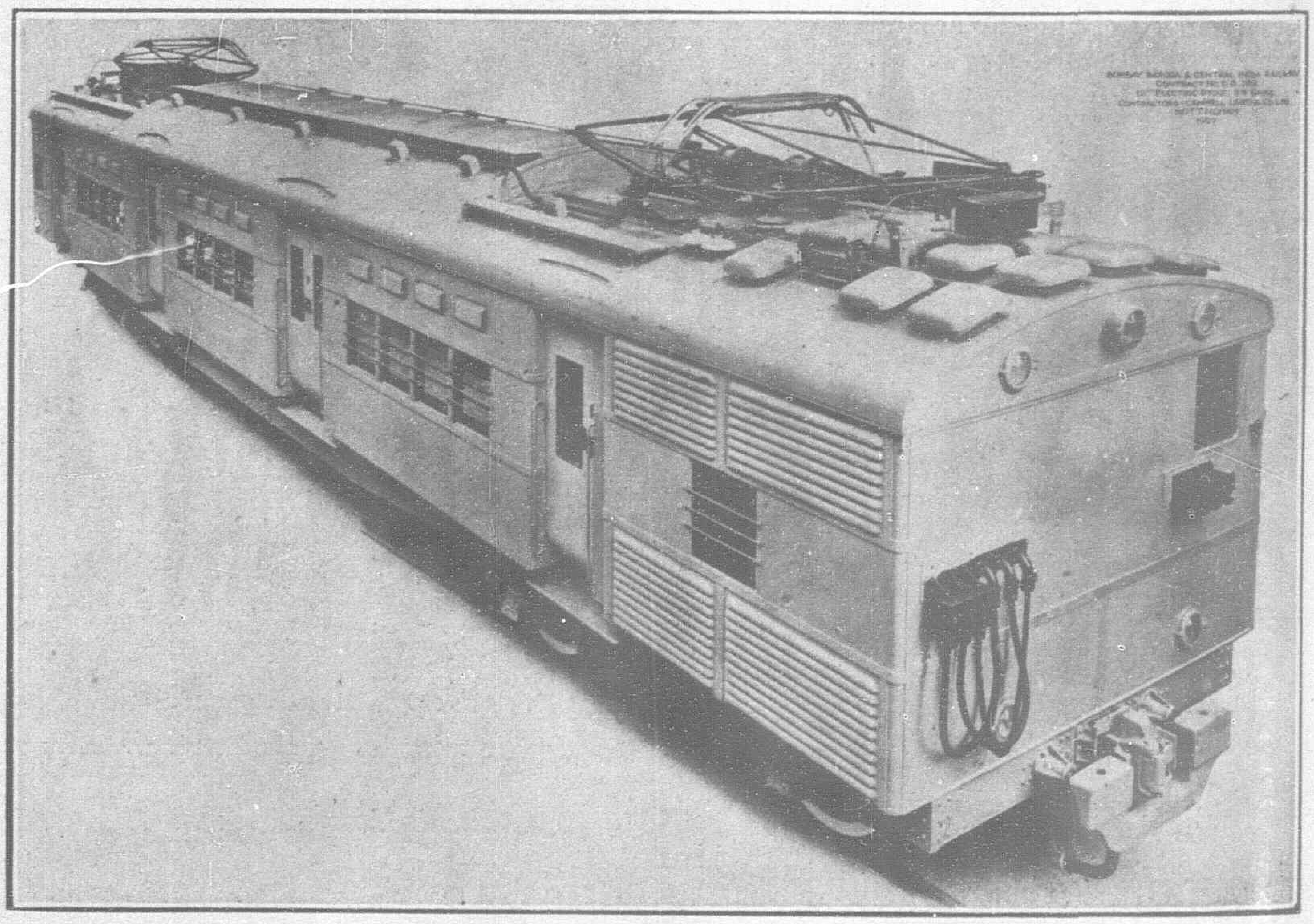
The freight locomotive is the largest and most powerful yet built in Great Britain and is the first of forty-one similar locomotives which are being supplied by the Metropolitan-Vickers Electric Company under this contract. Each locomotive has motors totaling 2,600 h.p. and weighs over 120 tons, the whole of this being adhesive weight. The construction is articulated—the body, which is about 60 feet in length, being carried on two trucks which are coupled by a flexible joint. The rigid wheel base is thus reduced to that of a single truck, *viz.* about 16 feet, which enables sharp curves to be negotiated. Regenerative braking is provided to enable heavy trains to be safely handled on the heavy gradients.

Operation is on a 1,500 volt supply from overhead line. The control system is electro-pneumatic. To eliminate all risk of accidental contact with high voltage parts all the high tension apparatus is contained in a center compartment the doors of which are locked so long as the apparatus is " alive."

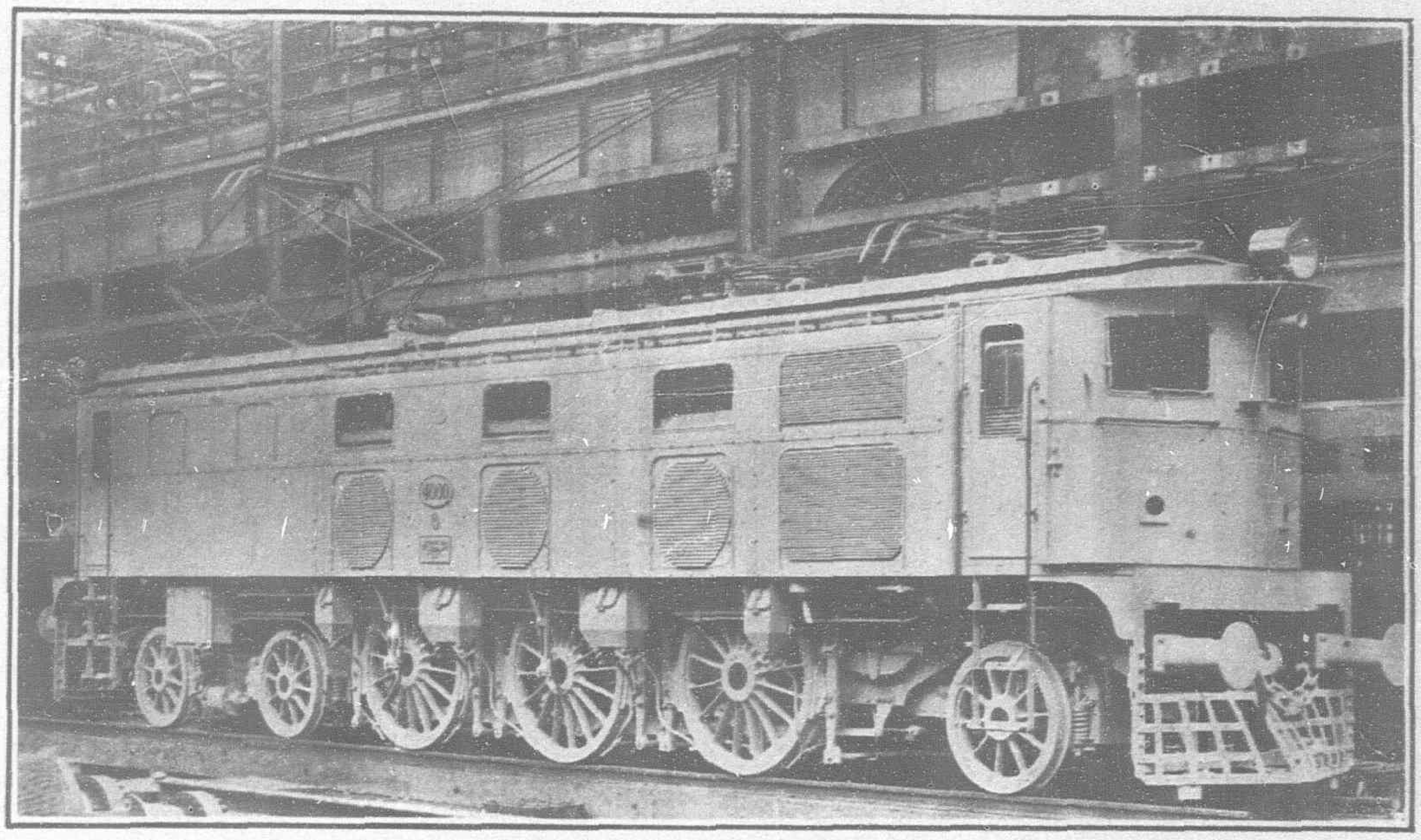
The mechanical parts for the first ten of these locomotives are being constructed by the Swiss Locomotive Works, of Winterthur, and those for the remaining thirty-one by the Vulcan Foundry Company, of Newton-le-Willows, Lancs.

The passenger locomotive presents many interesting features. It has three driving axles, one four wheel bogie truck, and one two wheel pony axle working in conjunction with the nearest driving axle so as to form virtually a four wheel truck. The electrical equipment includes six 360 h.p. motors and electro-pneumatic control. All high voltage parts are protectively enclosed as in the case of the freight locomotives. The mechanical parts have been supplied by the Swiss Locomotive Works.

This locomotive will be used for high speed service and is



Cammell Laird—British Thomson-Houston Motor Coach for Bombay, Baroda and Central India Railway Suburban Service mechanically safe for speeds up to 85 miles per hour. For speeds of this magnitude it is necessary that as little dead weight as possible should be carried on the axles, and for this purpose the motors and their gearing are rigidly mounted on the frame of the locomotives, and transmit their power to the driving axles through the universal motion flexible link drive which is capable of accommodating the route of movement between axles and frame of the locomotive; all the weight is thus spring borne and the center of gravity is comparatively high so that the truck is thereby relieved from shocks.

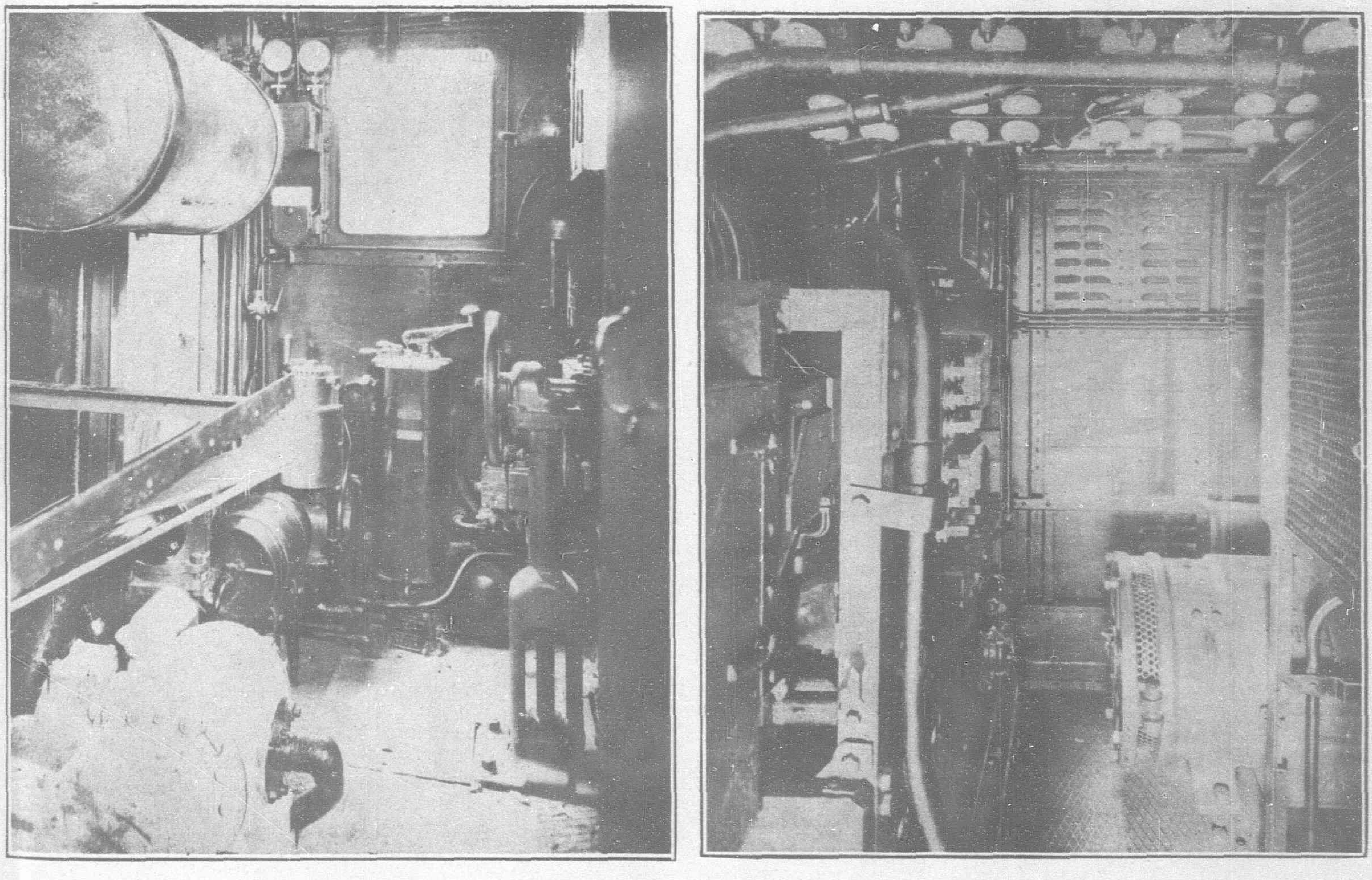


Metrovick 2,160 H.P. High Speed Passenger Electric Locomotive for the Great Indian Peninsula Railway

It is the ultimate intention to operate the Passenger Locomotive in conjunction with some of the Freight Locomotives mentioned, on the very heavy gradient section where the railway crosses the Ghats, and where average gradients of 1 in 40 are encountered over long distances. On these gradients a Passenger Train will be assisted by a Freight Locomotive operating as a Banking Engine, and the characteristics of the two Locomotives are such that they will operate together with a proper sharing of the load.

The weight of the Passenger Locomotive is about 100 tons, of which about 60 tons is adhesive weight.

It is of interest to note that the last British records for weight and power of electric locomotives were also made by the Metropolitan Vickers Electrical Company. The heaviest electric locomotive previously built in Great Britain was the 110 ton high speed passenger locomotive built for experimental work in connection with the proposed North Eastern Railway electrification, while the most powerful was the 2,340 h.p. passenger locomotive recently supplied for the Paulista Railway of Brazil.



B. T. H. Motor Coaches for Bombay, Baroda and Central India Railway

Interior of Driving Cab

Interior of Motor Coach, Showing High Voltage Chamber

# Bombay, Baroda and Central Railway New Electric Trains for Suburban Services

With the official inauguration of the electric service on the Bombay Suburban section of the Bombay, Baroda and Central India Railway on January 5, 1928, by H. E. Sir Leslie Orme Wilson, the Railway Company may be said to have entered on a new era in its history, and Bombay to have taken a large step forward in the improvement of its communications. This whole problem is one of no mean difficulty owing to the density of the population in Bombay and to the fact that, as Bombay proper occupies the southernmost of the Salsette Islands, it is only possible for the residential part to extend in a northerly direction. Under the control and direction of the Bombay Improvement Trust, suburban areas are being developed with all modern conveniences in healthy surroundings and with easy access to the city. The railway services under steam operating conditions have proved unequal to the task of transporting to and from the city the rapidly increasing number of suburban residents, and as long ago as 1912 Mr. Merz of Messrs. Merz & Partners, 32 Victoria Street, London, S.W.1., was invited to investigate and report on the feasibility of improving the railway communications between the city and suburban districts by means of electrification. Consideration of the report was, not unnaturally, delayed owing to the dislocation experienced in 1914 and subsequent years, but as soon as possible the scheme was proceeded with. Before any definite progress could be made in the matter of substituting electric power for the existing steam locomotives, however, many preliminaries were necessary; these included quadrupling the tracks between Grant Road and Borivili, remodeling most of the local stations, the installation of track circuiting over the entire section of 23 miles and the substitution of over-bridges at important crossing points where formerly a level crossing had been sufficient to deal with the traffic.

The electrified section is from Church Gate in the south to Borivili in the north, also the two through tracks from Grant Road to Brandra, and the temporary section from Colaba to Church Gate. Power is transmitted to Bombay at 110,000 volts, three-phase, 50 cycles from the hydro-electric generating stations in the Western Ghats, some 100 miles distant, and after being transformed to 22,000 volts at the Dharavi Receiving Station it is fed to the railway substations, which supply the overhead contact lines at 1,500 volts direct current. The running rails form the return circuit to the substations.

The rolling stock consists of 160 coaches, 40 being motor coaches with one driving end, 80 driving trailer coaches with one driving end, and 40 ordinary trailer coaches. The coaches were built by Messrs. Cammell Laird & Co., Ltd., and the complete electrical equipments for these coaches were supplied by The British Thomson-Houston Co., Ltd., Rugby. Each motor coach is provided with four 275 h.p. 700 volt motors, two on each bogie permanently connected in series, and control is effected on the B.T.H. electro-pneumatic multiple unit system arranged for automatic acceleration.

Many interesting points may be noted in connection with these electric trains, which are made up on the unit system, a train unit consisting of four coaches in the following order :—driving trailer coach, trailer coach, motor coach, driving trailer coach. The control equipments are capable of operating three four coach units, namely a twelve coach train having seating accommodation for about 1,500 passengers, the capacity of the existing steam trains being about half this amount. As the equipments are capable of accelerating a fully loaded train at the rate of approximately one mile per hour per second, it is possible to attain a speed of 27 m.p.h. in half a minute from starting.

# Brown Boveri Locomotive for the Great Indian Peninsula Railway

On May 8, 1928, a 2 Co 2 express electric locomotive was shipped on board the motor vessel Beljeanne at Wallsend for Bombay. This was the trial locomotive ordered on April 11, 1927, by the High Commissioner for India from British Brown-Boveri Limited, London, for the Indian State Railways. The locomotive is to run on the Bombay-Igatpuri and Bombay-Poona sections, which it is intended to electrify with direct current at a contact-line pressure of 1400 V. According to the contract under which the order was made, the purchaser has the option of ordering a further 22 to 28 locomotives of similar design at the same terms. The electrical equipment was made by Brown, Boveri & Co., Baden, and the mechanical part by R. & W. Hawthorn, Leslie & Co., Ltd., Newcastle-on-Tyne. The locomotive was also completely erected in the workshops of the latter firm. The following are some of the more important particulars of the machine :—

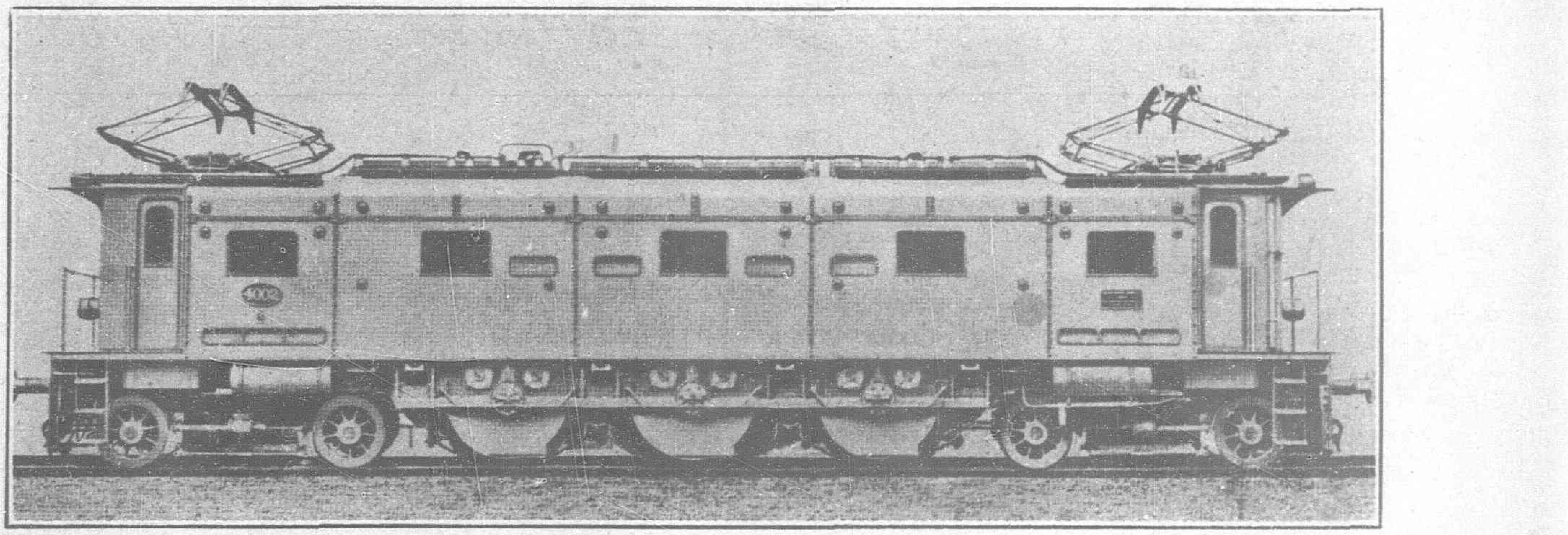
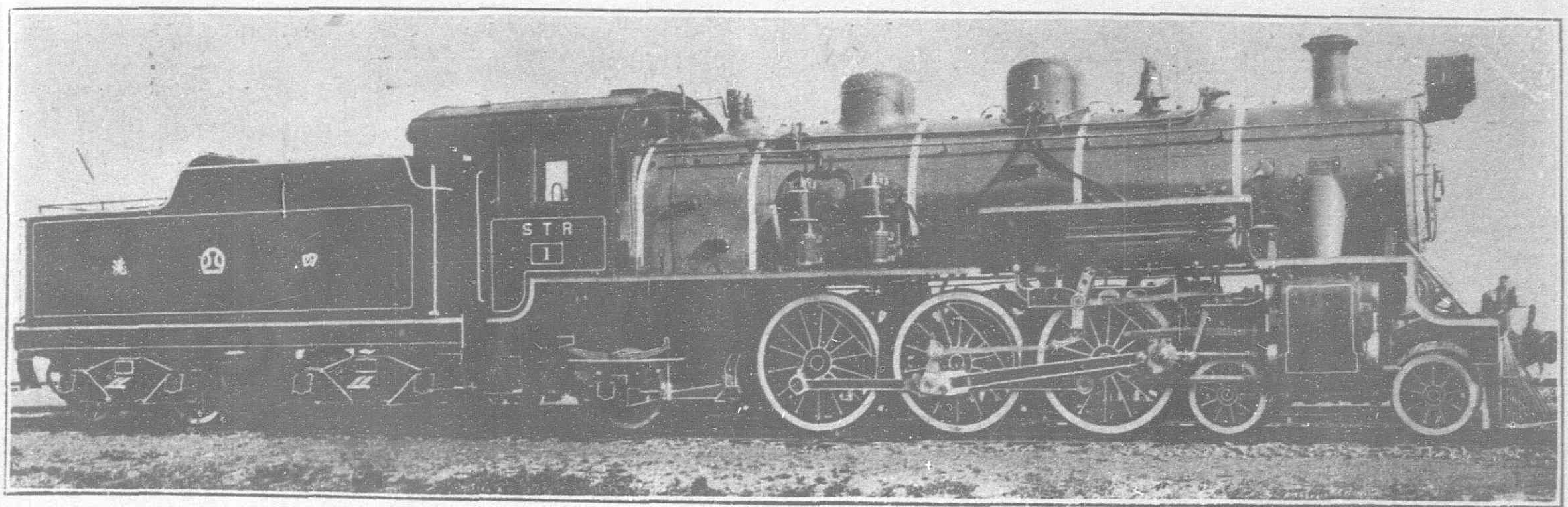


**Fig. 2.—2 $C_o$ 2 Express Locomotive for the Great Indian Peninsula Railway**

| | |
|---|---|
| Gauge .. .. .. .. .. .. .. | 1676 mm (5′—6″) |
| Minimum radius of curvature .. .. .. | 152 m (500′) |
| Combined one-hour rating of the six motors at the shaft .. .. .. .. .. .. | 2430 H. P. |
| Corresponding speed .. .. .. .. | 57 km/h |
| Maximum speed .. .. .. .. .. | 120 km/h |
| Maximum speed mechanically possible .. | 137 km/h |
| Greatest load on one driving axle .. .. | 20 tons |

The locomotive is equipped with the renowned Brown Boveri individual axle drive, there being two motors to each driving axle. The six motors can be connected in series, series-parallel (two groups of three motors) or in parallel (three groups of two motors); thus three economical running speeds in the ratio of 1:2:3 are obtained. With each of these connections the locomotive can be run continuously on either of two field-weakening positions.

With the exception of the driving motors, which were removed in order to reduce the weight to be lifted, the locomotive was shipped complete. The motor ship Beljeanne has a displacement of 10,000 tons and has been built specially for transporting freight of this type. The size of the hatchway enabled the complete locomotive to be placed below the deck.



**One of Four Pacific Type Locomotives for the Chinese Government Ssupingkai—Taonan Railway Built at S.M.R. Workshops at Dairen**

# Pacific Type Locomotives for the Ssupingkai-Taonan Railway

## Built by the S.M.R. Workshops, Shakakou, Dairen

ONE of the four Pacific Type Locomotives, the order of which was placed last spring with the S.M.R. Workshops, Shakakou, Dairen, was completed on September 26. Upon the technical test of this locomotive in having it run on the line between Ssupingkai and Chengchiatun, by attaching to it a special car, excellent results were obtained, giving the Ssupingkai-Taonan Line authorities great satisfaction. The speed obtained by the trial run reached 80 kilo. hrs.

The first locomotive that was designed and built at the Workshops fifteen years ago is still in use in connection with freight cars. It may be noted in this connection that the approximate weight of this locomotive in working order is 132 gram-tons.

The Workshops have been building 10-20 locomotives a year, most of which have been in use of the South Manchuria Railway. Among the other locomotives which were built at the Workshops, there are 21 which have been used on the Chosen Railways ; three on the railways in Indo-China ; and six have been used by Baitetsu Konsu at Penchihu.

The new locomotive which was designed and built at the workshops has a weight in working order of 135 gram-tons, and the maximum traction power of 12,400 kilogram.

The new locomotive took about four months in the making alone, at a cost of G.Y.75,000.00, which, when the working weight is converted into the empty weight of the locomotive is only G.Y.700.00 per short ton. It may be noted in addition that this new locomotive was designed by utilizing a unique experience of about 20 years in the past on the part of the Workshops in order to adjust it to the local condition of Manchuria.

### Specification of Pacific Type Locomotives for Ssupingkai-Taonan Line

(Chinese Government Railways)

| | |
|---|---|
| Gauge of Track | 1,435 m/m. (4-ft. 8½-in.) |
| Service | Passenger |
| Diameter of Cylinder | 520 m/m. |
| Piston Stroke | 660 ,, |
| Diameter of Driving Wheel | 1,600 ,, |
| Diameter of Truck Wheel (Leading) | 840 ,, |
| Diameter of Truck Wheel (Trailing) | 1,000 ,, |
| Inside Diameter of Boiler at smallest course | 1,600 ,, |
| Working Pressure | 13 kg./sq. c.m. |
| Length of Fire Box at Grate Surface | 2,278 m/m. |
| Width of Fire Box at Grate Surface | 1,580 ,, |
| Number of Tubes | 125 |
| Diameter of Tubes | 57 ,, |
| Number of Flues | 22 |
| Diameter of Flues | 140 ,, |
| Length of Tube and Flue | 5,500 ,, |
| Number of Arch Tubes | 4 ,, |
| Diameter of Arch Tubes | 76 ,, |
| Driving Wheel Base | 3,400 ,, |
| Engine Wheel Base | 9,300 ,, |
| Engine and Tender Bases | 17,660 ,, |
| Width of Engine | 3,048 ,, |
| Height of Boiler center line above Rail | 2,700 ,, |
| Approx. Weight in working order :— | |
| Leading Wheels | 16,300 kg. |
| Driving Wheels | 48,600 ,, |
| Trailing Wheels | 16,100 ,, |
| Engine | 81,000 ,, |
| Tender | 52,500 ,, |
| Weight Empty (Engine) | 71,000 ,, |
| Weight Empty (Tender) | 21,000 ,, |
| Kind of Fuel | Soft coal |
| Heating Surface :— | |
| Tubes | 172 Sq. m. |
| Fire Box | 17 ,, |
| Arch Tubes | 1.7 ,, |
| Total | 19.7 ,, |
| Super Heating | 44 ,, |
| Grate Area | 3.6 ,, |
| Grade | 1 in 130 |
| Minimum Radius of Curve | 500 m. |
| Water in Tender | 22½ Cum. (5,950 U.S.G.) |
| Coal in Tender | 9 tons. |
| Tractive Force | 12,400 kg. |
| Factor of Adhesion | 3.98 |

# River Gunboats for Yangtze Service: U. S. S. Guam and U. S. S. Tutuila*

*By Commander Bryson Bruce, U. S. Navy.*

[ABRIDGED]

**With the completion of the six river gunboats built for the Yangtze Patrol of the United States Navy, the Kiangnan Dock and Engineering Works rounds out a career of sixty years development from a little local repair yard for the infant Chinese navy, into a shipbuilding institution of world importance. It is a high tribute to the reputation and efficiency of these works, that the American naval authorities after designing a type of vessel suitable for the upper Yangtze waters with Diesel engine drive and, after these plans had been approved and the money appropriated by Congress for their construction, that the Official plans were discarded for those submitted by the Kiangnan Dockyard. The new design was drawn up by Mr. R. B. Mauchan, who for over a quarter of a century, before his recent retirement, directed the technical end of the dockyard and built it up to its present commanding position amongst the shipbuilding yards of the world. Mr. Mauchan is recognized as the highest authority on vessels for the Upper Yangtze service. The contract for the six gunboats built to his design, was placed with the Kiangnan Dockyard at a cost aggregating $4,200,000 gold.**

**This is the second time that the American Government selected the Kiangnan Dockyard for building its ships. During the war, the U. S. Shipping Board placed an emergency order for four 14,750 ton freighters with this yard at a cost of $9,000,000 gold. These vessels, with their engines were built entirely at the local works and have since been in constant service on the general Atlantic and Pacific cargo runs. Nearly 600 vessels of all kinds and sizes have been built at the Kiangnan Dock, of which over 60 were specially designed for the Upper Yangtze River.**

FOR many years the United States has been represented on the rivers in Asiatic waters by a number of old gunboats, none of which were constructed for this particular duty, with the exception of two—the Monocacy and the Palos. These two vessels were assembled at the Navy Yard, Mare Island, California, taken apart, shipped to Shanghai, then put together and launched at a local dockyard.

About five years ago, the Navy Department decided that it would be necessary to build some new vessels for this service for replacements and the General Board made a study of the characteristics that a gunboat should have for service on the Yangtze.

On March 1, 1926, contracts were signed with the Kiangnan Dock & Engineering Works of Shanghai, China, for the construction of six gunboats of their design and of three different classes. Two of these vessels, the smallest class, will be described, and results of their trials given.

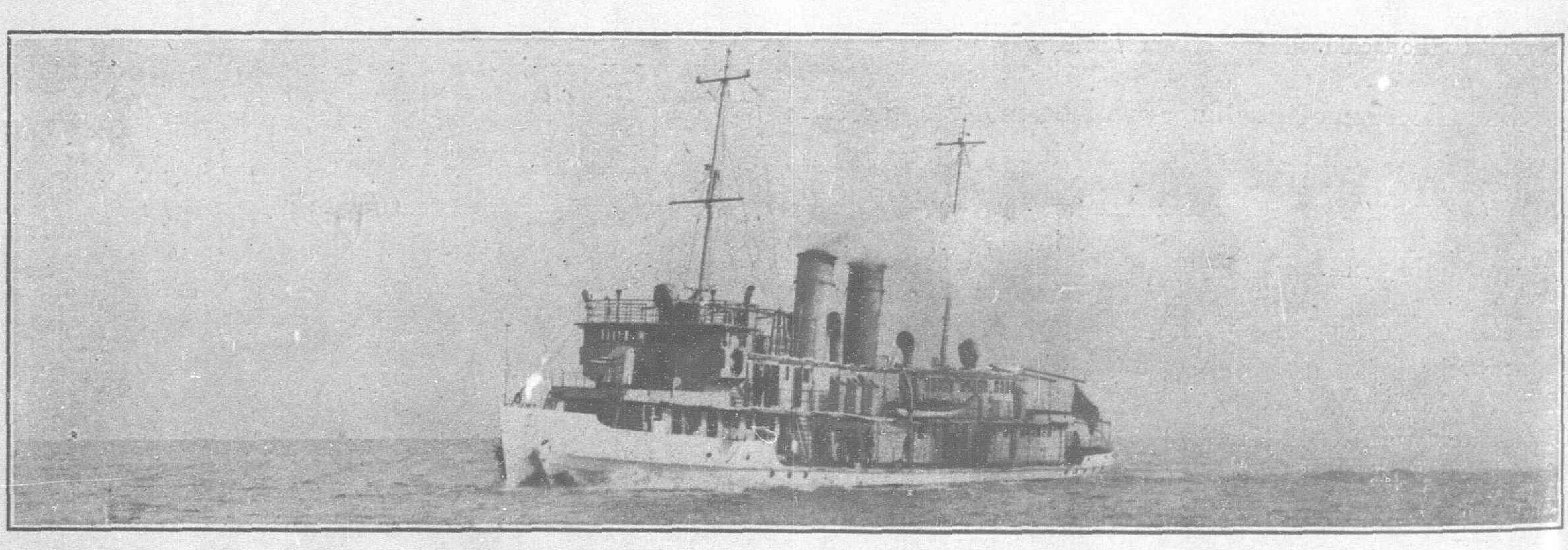
The design of the *Guam* and *Tutuila* is a credit to Mr. B. R. Mauchan, recognized among shipping circles in China as the greatest authority on vessels for service on the Yangtze river. This alternative design, submitted by the Kiangnan Dock & Engineering Works, was accepted by the Navy Department on recommendation of the Commander-in-Chief of the U. S. Asiatic Fleet and of the Commander of the Yangtze Patrol Force. This class was to have a length of 150 feet, draft not over 5 feet 3 inches and a guaranteed speed over the measured mile of not less than 14.5 knots.

### NAMES.

The Guam was commissioned as a U. S. gunboat on December 28, 1927, and the Tutuila on March 2, 1928.

### GENERAL DATA.

| | |
|---|---|
| Length between perpendiculars, feet and inches ... | 150-00 |
| Length over all, feet and inches ... ... ... | 159-03.25 |
| Length on L.W.L., feet and inches ... ... ... | 149-09 |
| Beam, moulded, feet and inches ... ... ... | 27-00 |
| Beam on L.W.L., feet and inches ... ... ... | 27-00.125 |
| Beam, extreme, feet and inches ... ... ... ... | 27-11 |
| Draft, designed fresh water, feet and inches ... ... | 5-03 |
| Displacement on designed draft, tons ... ... ... | 387 |
| Displacement per inch on L.W.L., tons... ... ... | 7-55 |

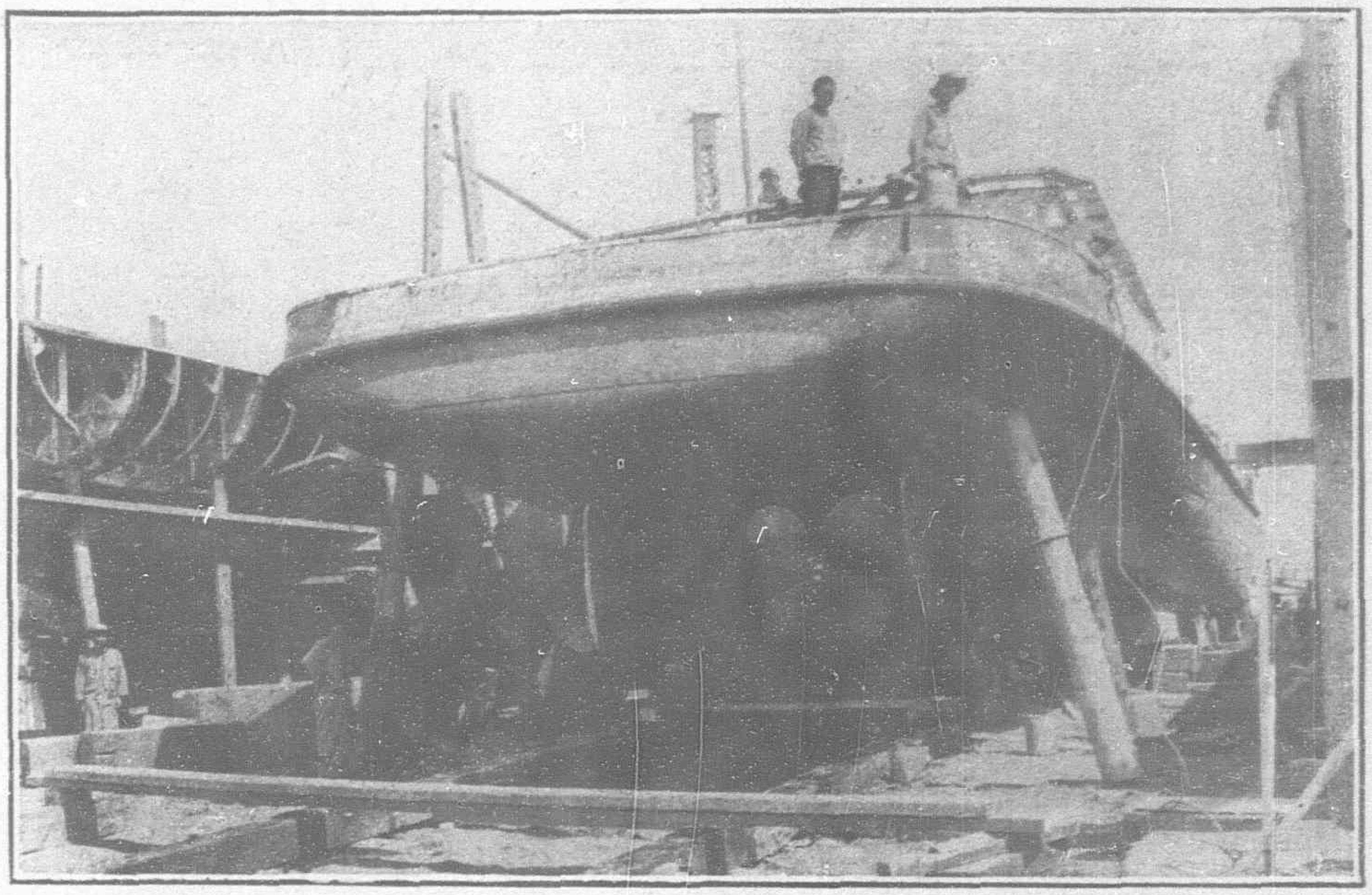


U.S.S. Guam—The First of the Six New China River Gunboats for the American Navy

| | |
|---|---|
| Coefficient of fineness, block ... | .656 |
| Coefficient of fineness, midship section | .991 |
| Coefficient of fineness, L. W. L. ... | .801 |
| At designed draft, area immersed midship section, sq. ft. ... ... | 140.67 |
| Area L.W.L. plane, square feet ... ... ... | 3250 |
| Area, wetted surface, square feet ... ... ... | 4260 |
| Gravity tank capacity, gallons ... | 150 |
| Fresh water, ships tanks, gallons ... | 2040 |
| Reserve feed tank, tons ... ... | 7.12 |
| Engine room feed tank, gallons ... | 100 |
| Fuel oil carried on designed draft, tons | 26 |
| Fuel oil bunker capacity, tons (95 per cent full)... ... ... ... | 77.48 |

### GENERAL DESCRIPTION.

The general data of the hull of the *Guam* and *Tutuila* is as given above. They are twin screw open stern boats with three rudders and a spoon bow. Construction throughout is of the lightest weight consistent with necessary strength for river service. All structural steel work, plates, iron and steel fittings, etc., are galvanized by the hot process except bullet proof plates.



U.S.S. Guam, Stern View, Prior to Launching, May 28, 1926

### CONTRACT REQUIREMENTS AND RESULTS.

The contract required a speed of not less than 14.5 knots over a measured mile and a fuel capacity to give a steaming radius of 1,000 miles at 10 knots.

The design was for 14.5 knots at 320 R. P. M. and 1950 I. H. P. The trial results were 14.5 knots at 323 R. P. M. and 1410 I. H. P. for the *Guam* and 322 R. P. M. and 1385 I. H. P. for the *Tutuila*. The steaming radius required was 1,000 miles at 10 knots. The bunkers of each vessel hold 77.48 tons of fuel oil at standard gravity and temperature. In the case of the *Guam* the trial results indicate that it requires 39.42 tons per 100 miles leaving a possible reserve supply of 38.06 tons, and in the case of the *Tutuila* the corresponding figures are 34.75 tons and 42.73 tons. The maximum speed and corresponding I. H. P. were: *Guam*, 15.62 knots and 2048 I. H. P.; *Tutuila*, 15.61 knots and 1956 I. H. P.

Machine Shop Crew of the Kiangnan Dock and Engineering Works

### ARRANGEMENT OF MACHINERY.

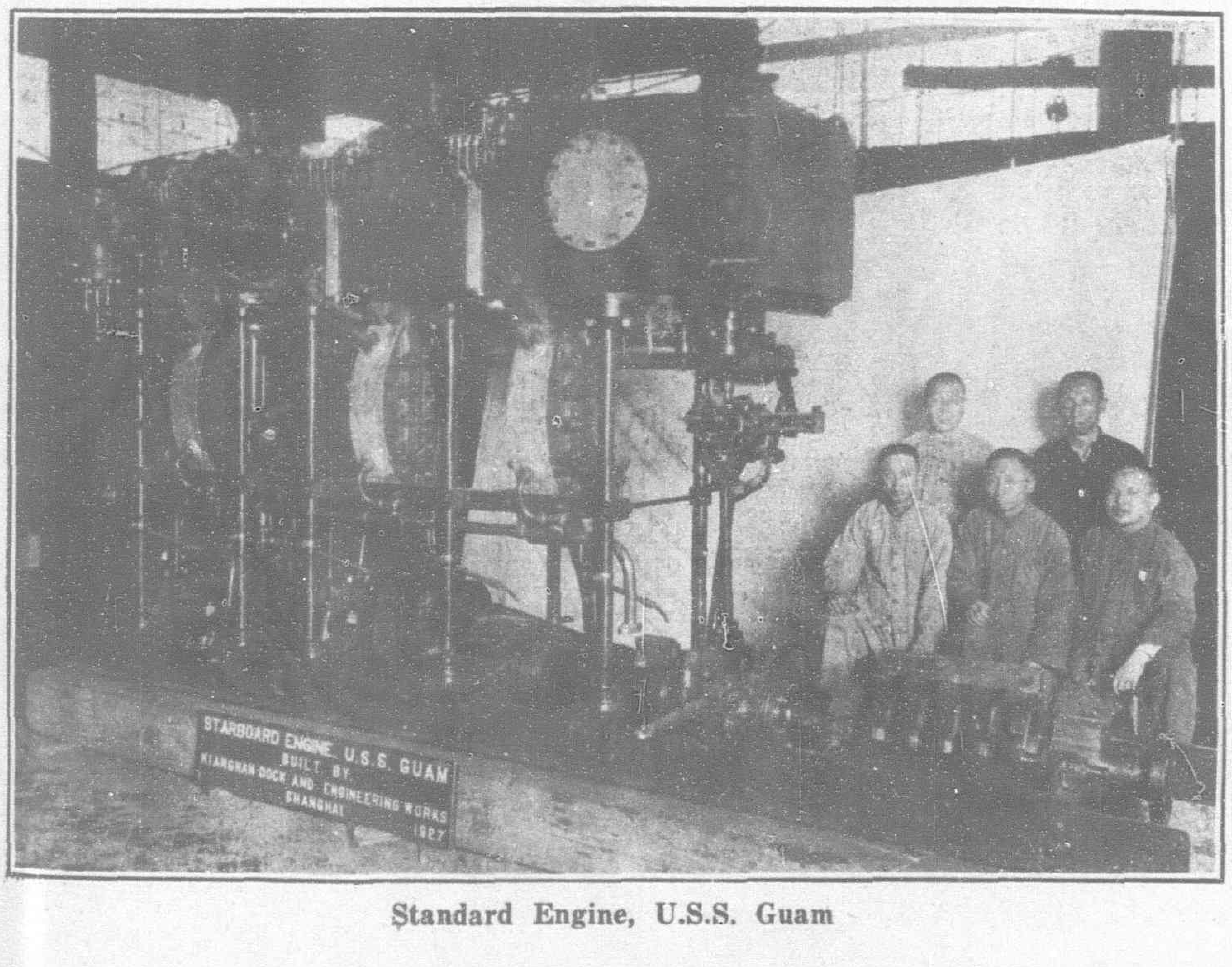
The accompanying sketches show the arrangement of the engine room and fireroom and, although not exactly to scale, give a very good idea of the space for operation and overhaul. The skill, and particularly the patience of the Chinese workmen, shows up in the arrangement of many minor details which taken in the aggregate affect materially the workman-like appearance and the ease of operation and upkeep.

### OPERATION UNDERWAY.

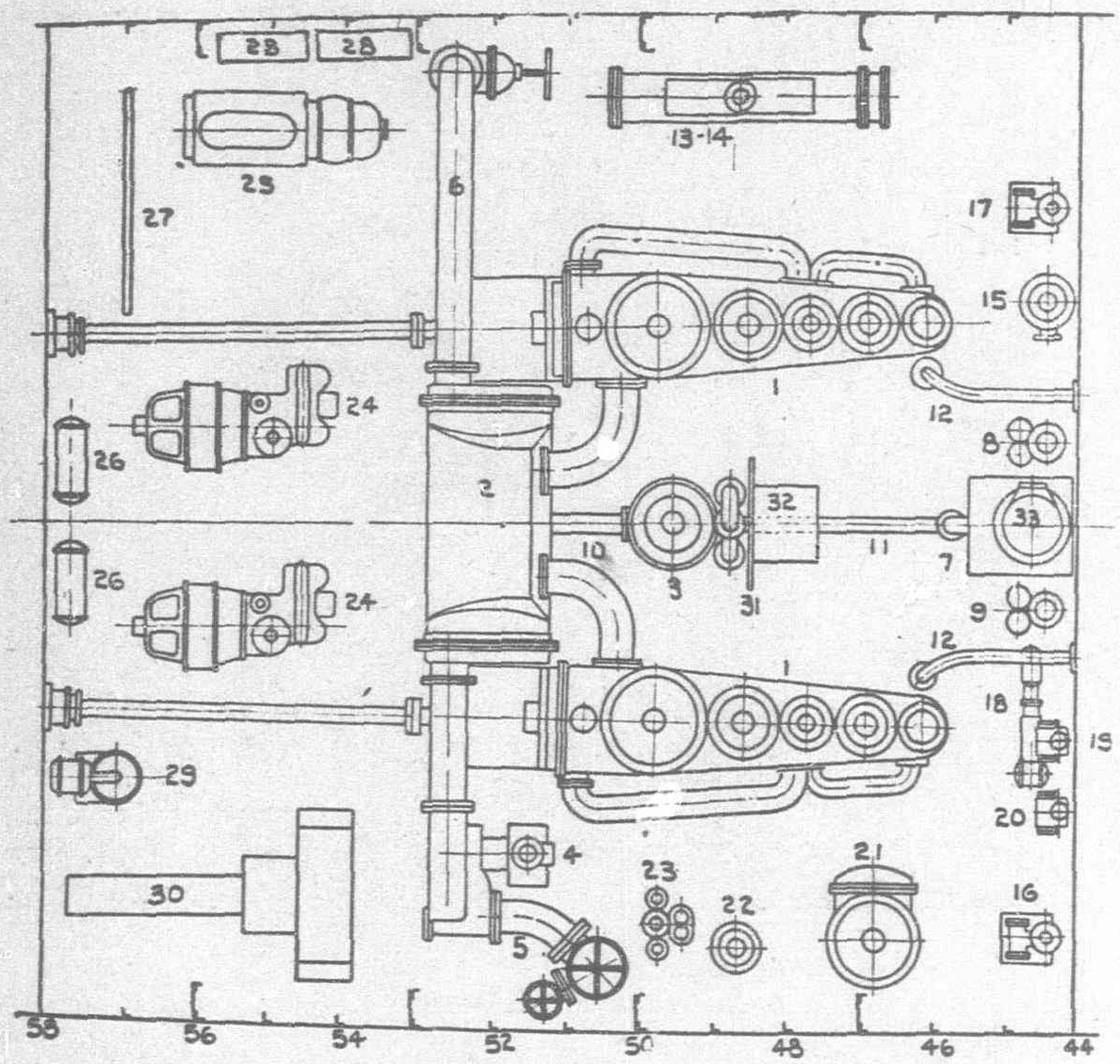
Underway there is no special conditions except there is only one main condenser, one main air and one main circulating pump. It is possible to put the general service pumps on the condenser and to drain it—with the atmospheric valve open—to the reserve feed tank. Generally underway both boilers will be in use, or at least in the gorges, as a precautionary measure.

### OPERATION IN PORT.

A feature in port operation, which means a considerable saving in fuel, is the installation of a Ray Rotary oil burner, electric driven


STARBOARD ENGINE, U.S.S. GUAM
BUILT BY
KIANGNAN DOCK AND ENGINEERING WORKS
SHANGHAI
1927

Standard Engine, U.S.S. Guam



1 Main Engine
2 Main Condenser
3 Main Air Pump
4 Main Circ. Pump
5 Main Injection
6 Outboard Delivery
7 Hotwell
8 Main Feed Pump
9 Aux. Feed Pump
10 Main Air Pump Suction
11 Main Air Pump Discharge
12 Main Steam
13 Aux. Condenser
14 Aux. Air & Circ. Pump
15 Grease Extractor
16 Gen. Service Pump-Stbd
17 Gen. Service Pump-Port
18 Gen. Service Pump-Electric
19 Freshwater Pump
20 Sanitary Pump
21 Evaporator
22 Distiller
23 Evap. Feed & Dist. Circ. Pump
24 25 K.W. Turbo-Generator
25 10 K.W. Oil Eng. Generator
26 I.C. Motor Generator
27 Main Switchboard
28 Searchlight Theostat
29 Sensitive Drill
30 Combination Lathe
31 Gauge Board
32 Log Desk
33 Feed Heater

on each boiler. With this burner, which is supplied with oil direct by a small electric driven pump set, it is possible to operate with an open fireroom and unnecessary to use the forced draft blowers, steam fuel oil service pumps and fuel oil heaters. In weather where steam heat is unnecessary and with a supply of fresh water, fires may be died out in both boilers, the 10 K. W. kerosene generating set operated and the vessel can accomplish all tasks usually requiring power except to pump up the gravity tank. The refrigerating machinery, machine tools, radio, ventilating fans, lights and all electrical appliances can be operated including the electric driven flushing pump—not all at one time, but with care, the generator need not be overloaded.

### MAIN ENGINES.

There are two main engines, triple expansion, inverted vertical, three cylinders arranged in order and with diameters as follows: H. P., 12 inches; M. P., 18 inches; L. P., 29 inches. The stroke is 16 inches and designed R. P. M. 320.

The finish of the engines is excellent. In addition to good appearance the trial results were highly satisfactory. It should be remembered that they are of light weight and high R. P. M.—360 possible—and need to be treated as a light duty rather than a heavy duty engine. The parts are all readily accessible with good headroom for working over cylinders with lifting gear and chain hoists always at hand.

The engines were entirely the product of the Kiangnan Dock & Engineering Works with the exception of the patent piston rings. and the rough steel castings.

### MAIN CONDENSER.

There is one main condenser of Uniflux type situated as shown on the sketch. It has 1346 square feet of cooling surface, 1055 tubes $\frac{3}{4}$ inch in diameter and 6 feet 8.25 inches long. Tubes are packed at both ends in rolled brass tube sheets. The shell is of steel and the heads of cast iron fitted with inspection plates. The delivery pipe from circulating pump is on the starboard side and is 11 inches in diameter, the overboard discharge of like diameter is on the port side. Both main engines, the turbo-generators, circulating pump, air pump and steering engine exhaust directly to the main condenser. The main air pump may also be cut into the auxiliary exhaust. The auxiliary exhaust may be cut into main condenser if desired.

### MAIN AIR PUMP.

There is one main air pump between the main engines forward of the main condenser. It takes suction from the condenser and discharges to the hot well between the main feed pumps near the forward engine room bulkhead. It is vertical simplex type, 12 by 24 by 15, manufactured by G. & J. Weir. The suction is 6 inches and discharge 5 inches in diameter. This pump exhausts either to main condenser or auxiliary exhaust line.

### MAIN CIRCULATING PUMP.

It is located on the starboard side near the main injection, is of centrifugal type and driven by a single cylinder engine of $5\frac{1}{4}$-inch bore and 4-inch stroke. It takes suction from sea or bilge and discharges to main condenser and overboard. Water is taken from the discharge of this pump for engine water service. Manufactured by the Kiangnan Dock & Engineering Works.

### MAIN FEED PUMPS.

There are two Weir main feed pumps located in the forward part of the engine room. They are of vertical simplex type, $10\frac{1}{2} \times 7\frac{1}{2}$ by 12, with $3\frac{1}{2}$-inch suction from feed tank, reserve feed tank and overboard, and 3-inch discharge to boilers *via* the grease extractor and feed heater, or these may be by-passed.

### AUXILIARY CONDENSER.

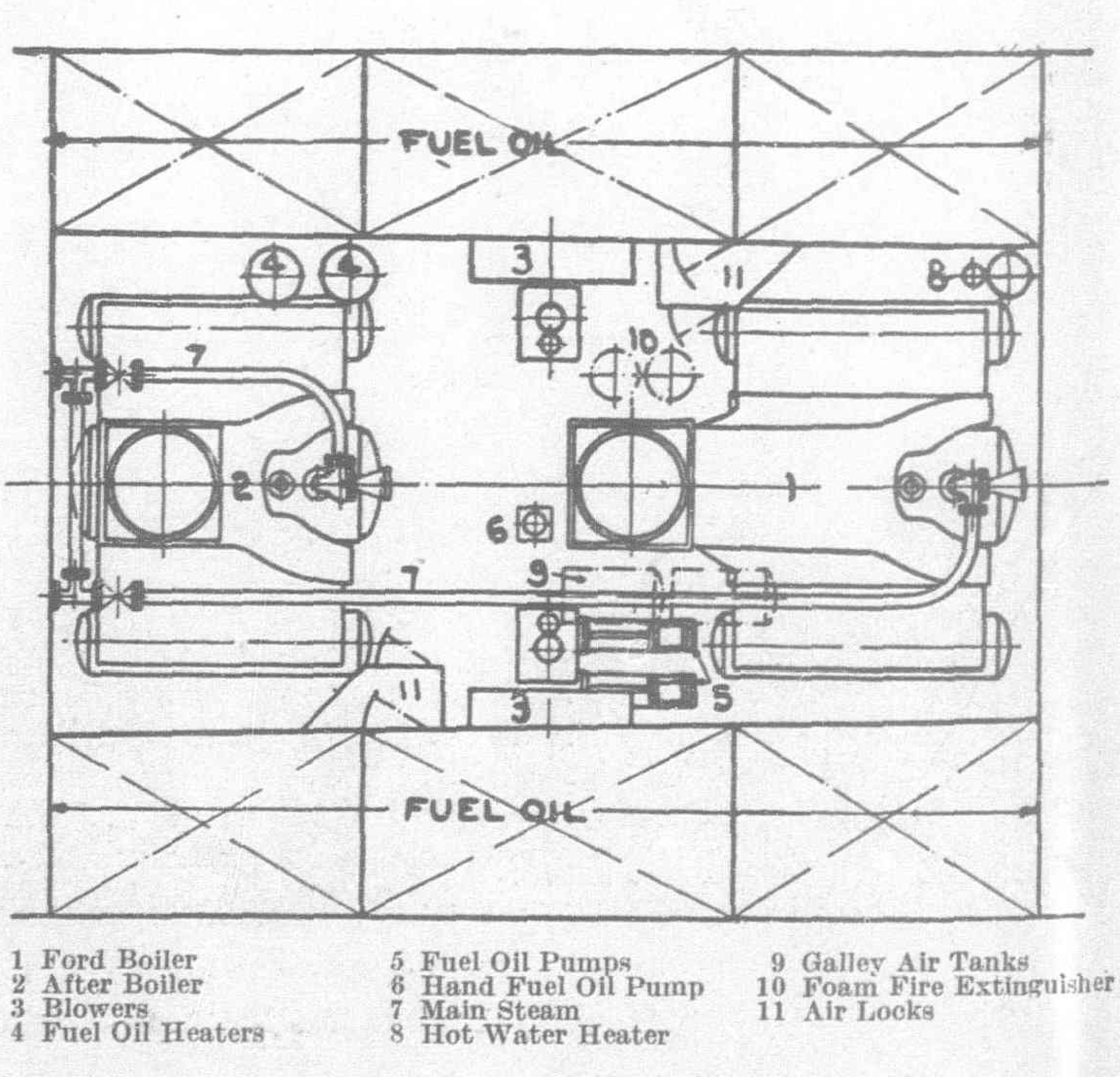
A Worthington surface type auxiliary condenser is installed. It has 142 square feet cooling surface, may be supplied with cooling water by its own pump or the general service pumps. It takes the auxiliary exhaust and turbo-generators on vacuum by direct line. It is equipped with the usual air and circulating pump, $5\frac{1}{2}$ by 8 by 8 by 7.

### OTHER PUMPS IN ENGINE ROOM.

Located on the starboard side of the engine room on the forward bulkhead are two Worthington vertical simplex pumps, $3\frac{1}{2}$ by 4 by 4. One of these pumps is the fresh water pump and can be used only for potable water, the other is connected to the fire and flushing system for sanitary purposes.

### GENERAL SERVICE PUMPS.

There is a Worthington vertical simplex general service pump on each side of the engine room forward. They are of $6\frac{1}{2}$ by 7 by 8 size and take suction from sea, engine room bilge and fireroom bilge. They discharge to fire main, flushing system, auxiliary condenser, filterer, engine water service and main condenser. An electric driven reciprocating Gould pump is installed for water service, principally flushing, when there is no steam on the ship. The pump has a 3-inch bore and $2\frac{3}{4}$-inch stroke and is driven by motor and silent chain.



1 Ford Boiler
2 After Boiler
3 Blowers
4 Fuel Oil Heaters
5 Fuel Oil Pumps
6 Hand Fuel Oil Pump
7 Main Steam
8 Hot Water Heater
9 Galley Air Tanks
10 Foam Fire Extinguisher
11 Air Locks

### Distilling Plant.

The distilling plant is of Weir design and manufacture, of high pressure type and has a capacity of 200 gallons per hour. It is located on the starboard side of the engine room and consists of one Weir evaporator, one distiller, a combined evaporator feed and distiller circulating pump, an evaporator feed tank and an evaporator feed filter tank located on the upper deck in the passageway between the uptakes. A Worthington fresh water pump takes suction from the distiller, also the ship's tanks, and discharges to reserve feed tank, ships tank and gravity tank. It is located on the forward engine room bulkhead and is a vertical simplex $3\frac{1}{2}$ by 4 by 4 size. In operating the evaporating plant water from overboard is taken from the firemain to the filterer on deck, where the silt and dirt is removed, keeping it from collecting in the evaporator. Water, after being filtered, flows to the evaporator feed tank from which it is taken by the evaporator feed pump. On account of the possibility of water in China being contaminated it is necessary to use a high pressure evaporator and to observe care to keep all contaminated water out of the fresh water system.

**Launch of Chinese Government River Gunboats Chung Yuen and Chung Kai at Bailey's Shipyard at Hongkong**

### Tanks.

There are six fuel oil tanks, three on each side outboard of the boilers having a total capacity of 77.48 tons, when 95 per cent. full. Two lubricating oil tanks on the starboard side of the upper deck and piped to upper gratings in engine room, one for wick feed oil holding 135 gallons, and one for forced feed oil holding 67 gallons. In a similar place on the port side a kerosene tank is installed having a capacity of 210 gallons. It is piped to the engine room to a small service tank for the kerosene engine driven generator. There is a lubricating oil tank in the vicinity of the ice machine which will care for 80 gallons of ice machine oil. The ship's gravity tank has a capacity of 150 gallons, the ship's storage tank 2,040 gallons, the reserve feed 7 tons and the feed and filter tank 100 gallons.

### Shafting.

There are the following separate pieces of shafting per engine. one crank shaft, thrust shaft, two sections of line shafting and propeller shaft. All shafting is solid forged steel, and is interchangeable between sides of the ship and between vessels. A spare propeller shaft was furnished for each vessel.

### Propellers.

The propellers are out turning, four blades, solid, bronze, cast and finished by the contractor. The pitch is 6 feet 9 inches and diameter 5 feet 3 inches. A spare set of propellers was furnished for each vessel.

### Lubrication.

Lubrication of main engines and other machinery is by hand or wick feed except forced feed is employed for forced draft blowers and turbo-generator sets. The stern tube and strut bearings are fitted with white metal bearings enclosed by means of the stern tube in an oil tight system. Oil is forced into the system at the forward end of the stern tube bearing through the pipe which forms a casing for the propeller shaft, through the strut bearing and back through a return pipe to a small oil tank near the deck in the after compartment of the vessel.

### Refrigerating Machinery.

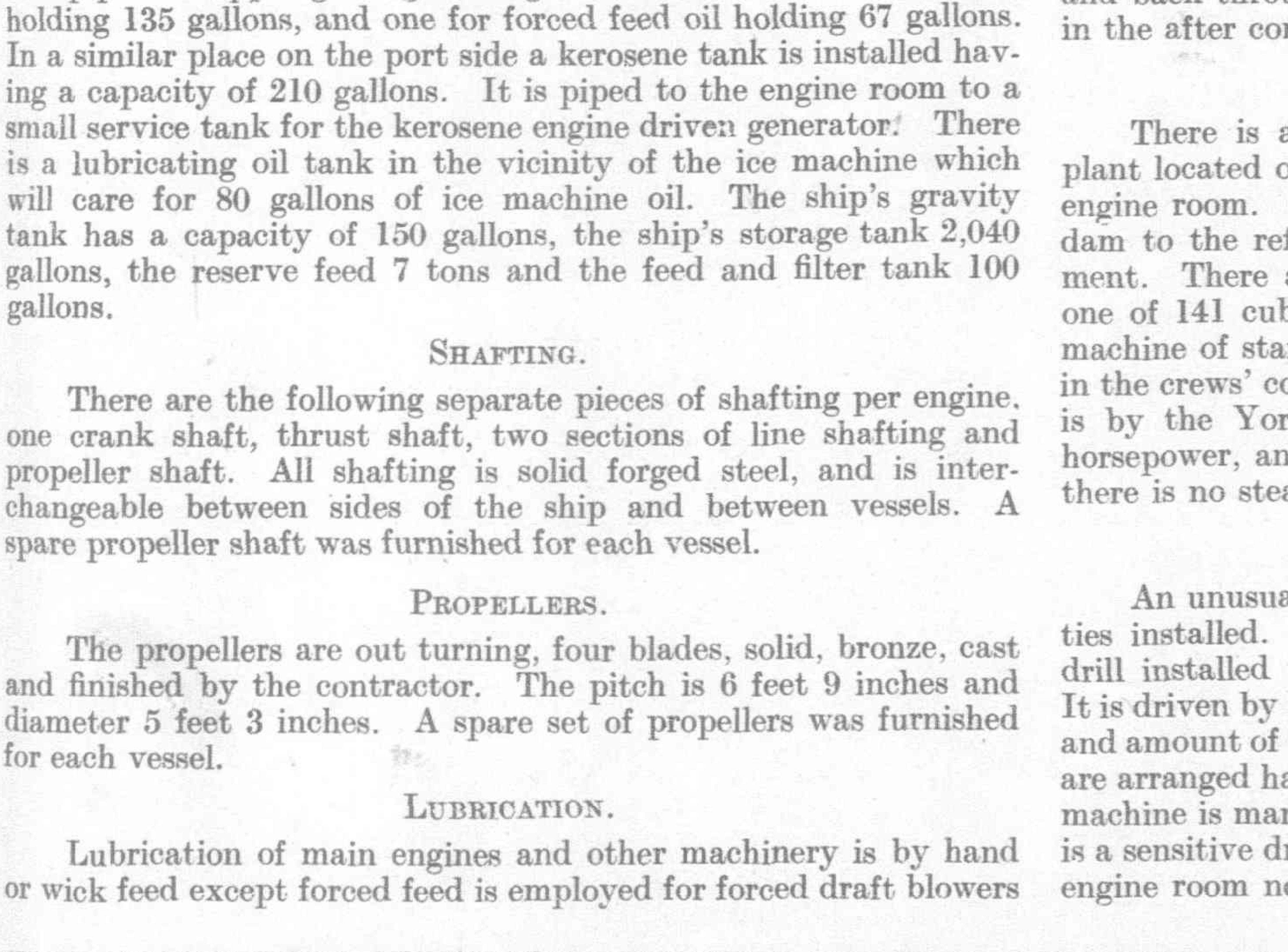
There is a 1-ton CO$_2$ direct expansion system refrigerating plant located on the starboard side in the compartment aft of the engine room. The refrigerating piping is lead through the cofferdam to the refrigerating rooms on the port side of this compartment. There are two of these rooms, one of 157 cubic feet and one of 141 cubic feet. An ice making tank is located near the machine of standard four cake size and the scuttle butt is located in the crews' compartment overhead. The refrigerating machinery is by the York Manufacturing Company, is motor driven, five horsepower, and can be operated by the kerosene generator when there is no steam on the ship.

### Repair Equipment.

An unusual feature of a vessel of this type is the repair facilities installed. There is a combined lathe, milling machine, and drill installed in the starboard after corner of the engine room. It is driven by belt and motor and is capable of considerable variety and amount of work in the hands of a competent operator. Lockers are arranged handily for the various accessories. This combination machine is manufactured by the Dalton Manufacturing Co. There is a sensitive drill, work bench and vise located in this corner of the engine room near the lathe. The drill is motor driven. There is a pedestal type two-wheel grinder, electric driven, located on the upper deck. A portable blacksmith's forge and tools are furnished.

### Boilers.

The two oil burning boilers are located front to front in a single fireroom with ample working space between. They are of Thornycroft design and manufacture, oil burning, express type, with one steam drum of 3 feet 6 inches diameter, and two water drums of 22 inches diameter. The heating surface is 2,600 square feet each; 1,468 cold drawn steel tubes of $1\frac{1}{8}$-inch diameter, .116 mils thick, the longest tube is 5 feet 10 11/16 inches; 144 cold drawn steel tubes of $1\frac{3}{8}$-inch diameter, .128 mils thick, the longest tube is 6 feet $6\frac{7}{8}$-inches. The furnace volume per boiler is 270 cubic feet. The working pressure is 250 pounds.



**Tug Boat Berta Built for the Macao Government by W. S. Bailey & Company of Hongkong**

Boilers are fitted with two Klinger type water gauge glasses, automatic feed regulator, and all other usual fittings. The safety valves are fitted with easing gear which may be operated from outside the boiler room on the main deck. The steam and water drums are covered with from 2 to 3 inches of magnesia lagging, reinforced with chicken wire, and protected on the water drums with sheet metal, and the steam drum by asbestos cloth.

Each boiler has its own uptake and smoke pipe, with manhole in uptakes, four handholes at base of outer smoke pipe, manholes in steam and water drums, and soot doors in casing for use in inspection and cleaning.

Each boiler has arranged on the front along the bottom three mechanical atomization Thornycroft oil burners, and in the center, over these burners an electric driven Ray Rotary oil burner for port use.

### Arrangement of the Fireroom.

The fireroom is made air tight for closed operation. The oil tanks are arranged outboard on each side of the fireroom with high and low suction to each tank. The suctions may be closed from outside the fireroom on the main deck. The accompanying sketch indicates the general arrangement of the fireroom. The two steam driven fuel oil service pumps are arranged side by side and take suction through a strainer from the supply main which leads along both sides of the fireroom and one end. Oil can be transferred from any starboard tank to any port tank or *vice versa*. These pumps discharge through duplicate strainers, oil meter with by-pass, and duplicate oil heaters to burners. There are individual valves to each burner on burner manifold and a quick closing master valve in the supply line. There is a hand driven pump for use in lighting off.

The Ray Rotary burner is located in the center of the boiler front and is supplied with oil by its own pump set, a small rotary pump driven by a chain and motor. There is one Ray burner per boiler and two pump sets. With this burner in use only, the fireroom is opened, and it is not necessary to use any of the main apparatus, only the burner and small pump being in use. This pump discharges through a small oil meter of a size suitable to the amount of oil being used.

The fireroom is built of bullet proof plates where exposed to direct fire, and bullet proof plates also are in way of oil tanks.

There are the usual foam type fire extinguishers and steam smothering line is run around the fireroom close to oil tank bulkhead and also underneath the boilers.

The forced draft blowers are located at the height of the main deck, one on each side, and take suction through a special bullet proof grating. There is a platform built across the fireroom at the height of the main deck with gratings along the sides of the boilers, which gives easy access to boiler fittings, fuel oil heaters, foam fire extinguishers, and lockers for stowage. The fireroom is entered from either side through air lock doors at height of grating.

### Machinery and Equipment in Fireroom.

Two Weir, horizontal, simplex fuel oil service pumps, 5¼ by 3¼ by 7.

Two Kiangnan forced draft blowers, single cylinder, steam driven, reciprocating, forced lubrication. The cylinder is 5½ inches in diameter and a 4½-inch stroke. The fan is 5 feet 3-inches diameter.

Two Weir oil heaters of 60 square feet heating surface each.

Fuel oil suction and discharge strainers in duplicate.

One 1¼-inch Buffalo fuel oil meter in discharge line from main service pump, and one ½-inch Buffalo fuel oil meter in discharge line from pump sets for Ray burners.

Two electric driven rotary fuel oil pump sets, capacity 60 gallons per hour each, ¼ H. P. motor, chain drive, furnished by Ray Manufacturing Co.

Two Ray Rotary fuel oil burners, one per boiler, speed up type, normal rated capacity 20 gallons per hour, motor driven, ¾ H. P.

Six Thornycroft mechanical burners, three per boiler, 700 pounds per hour capacity each.

One two-cylinder hand driven pump for oil supply in starting up, not needed if kerosene generator is in operation as Ray burners can be used.

One pair of tanks for foam type fire extinguishers—40-gallon capacity.

Vise attached to stanchion in center of fireroom.

Gauge board with pressure gauges, manometer and eight-day clock.

### Electric Generator.

There are two Westinghouse turbo-generators of 25 K. W. capacity each located in the after part of the engine room and one kerosene engine driven 10 K. W. set located on the port side of the engine room all in the vicinity of the main switchboard which is in the port after corner of the engine room. The steam driven sets exhaust to the main condenser, auxiliary condenser or atmosphere and can be operated in parallel. They are of the standard type with reduction gears and the usual governor and safety devices.

The kerosene set is driven by a four-cylinder Universal engine, is fitted with muffler, hand starting, magneto, and gravity feed from a small tank in the engine room. This small tank can be filled from a 210-gallon tank located on the upper deck.

### Main Switchboard.

The switchboard was manufactured by the Portsmouth Navy Yard and consists of three ebony asbestos wood panels supported on angle iron frame work. It is located in the port after corner of the engine room. All switchboard instruments are Westinghouse Electric & Manufacturing Co.

### Searchlights.

One 24-inch high powered searchlight is located on top of the bridge and a similar light aft of the main mast on the deck house. They are fitted for hand control and are of General Electric Company manufacture.

### Lighting.

All wiring, fixtures, etc., were furnished to Kiangnan Dock & Engineering Works by the Government and are latest specifications.

### Radio Installation

The Guam and Tutuila are equipped with the latest modern radio apparatus. It is conveniently installed in an ample well lighted and ventilated room on the upper deck. The apparatus and equipment in the radio room consists of two transmitters, three receivers, control panel, meters, batteries, and other necessary parts.

### General Data.

| | *Guam* | *Tutuila* | *Guam* | *Tutuila.* |
|---|---|---|---|---|
| H. P. steam chest, pounds absolute | 199 | 199 | 75.6 | 72 |
| I. P. receiver, pounds absolute ... | 79 | 82.5 | 29.2 | 23.5 |
| L. P. receiver, pounds absolute ... | 27.5 | 25 | 4.1 | 4.4 |
| Vacuum, inches ... ... ... | 25.6 | 24.6 | 25.2 | 24.8 |
| Barometer, inches ... ... | 29.85 | 30.02 | 29.85 | 30.02 |
| Main air pump double stroke per minute ... ... ... ... | 20 | 23 | 8.1 | 23 |
| Main circulating pump R. P. M. ... | 326 | 320 | 193 | 175 |
| Main feed pump double stroke per minute ... ... ... ... | 18.6 | 16.5 | 9 | 6.3 |
| F. and B. pump double stroke ... | 26.4 | 30 | 23 | 44 |
| Main injection temperature, degrees F. ... ... ... | 55 | 46.5 | 55 | 48 |
| Overboard discharge temperature, degrees F. ... ... ... | 81 | 101 | 70 | 93 |
| Outside air temperature, degrees F. | 51 | 43.6 | 53 | 47 |
| Engine room temperature, degrees F. | 85 | 74 | 85 | 77 |
| Boiler feed from heater, degrees F. | 156 | 150 | 164 | 166 |
| Main feed pump discharge pounds gauge ... ... ... ... | 311 | 270 | 291 | 257 |
| Turbo-generator, steam pressure pounds gauge ... ... ... | 242.5 | 243 | 245 | 240 |
| Volts ... ... ... | 125 | 125 | 126 | 125 |
| Amps ... ... ... | 93 | 90 | 88.6 | 82 |
| Kilowatts ... ... ... | 11.62 | 11.25 | 11.16 | 10.25 |
| Number of boilers in use ... ... | 2 | 2 | 2 | 2 |
| Number of burners in use per boiler | 3 | 3 | 1 | 1 |
| Square feet of H. S. boiler total | 5200 | 5200 | 5200 | 5200 |
| Fuel oil, pounds per hour ... ... | 3007 | 2770.5 | 885.2 | 781.5 |
| Fuel oil, pounds per I. H. P. main engines ... ... ... | 2.16 | 2.04 | 3.32 | 3.06 |
| B.T.U's. per pound (Fuel oil) ... | 19000 | 19000 | 19000 | 19000 |
| Fuel oil, pounds per hour, per square foot H.S. ... ... ... | .578 | .533 | .17 | .15 |
| Air pressure, fireroom, inches water | 1.7 | 1.27 | 1.04 | .6 |
| Boiler, square feet H.S. per I.H.P. main engines ... ... ... | 3.73 | 3.82 | 19.48 | 20.4 |

GENERAL DATA.

| | *Guam* | *Tutuila* | *Guam* | *Tutuila.* |
|---|---|---|---|---|
| Fuel oil service pump double stroke per minute ... ... ... | 16 | 13.2 | 6 | 4 |
| Fuel oil to heater, degrees F. ... | 73 | 64 | 85 | 84 |
| Fuel oil from heater, degrees F. ... | 141 | 165 | 143 | 172 |
| Fuel oil, specific gravity ... ... | .9353 | .9353 | .9353 | .9353 |
| Fireroom temperature above grating, degrees F. ... ... | 110 | 104 | 125 | 145 |
| Fireroom temperature floor plates, degrees F. ... ... ... | 92 | 85 | 108 | 109 |
| Pressure fuel oil to burners pounds gauge ... ... ... ... | 184 | 134 | 120 | 100 |
| R.P.M. blowers ... ... ... | 431 | 356 | 298 | 224 |

# Two Fast Gunboats for the Canton Government

The Canton Government some time ago ordered two fast river gunboats from W. S. Bailey & Company of Hongkong, to be used in the suppression of piracy in the Pearl River delta. These vessels, christened respectively, the Chung Yuen and the Chung Kai were launched on October 29, by the wife of Admiral Chan, both vessels taking the water amid a fusilade of firecrackers and the usual " good joss " ceremonies.

These are steel twin screw tunnel vessels 84 feet in length with a beam of 14 feet and designed for a speed of 15 miles per hour on an extreme draft of 2 feet 6 inches. The crew space is below deck forward and in deckhouse aft, and there is also saloon and Captain's house and deck house forward, radio room in after deck house and steering positions on both Bridge Deck and Upper Deck. Bullet Proof Plating extends from water-line upward with provision for automatic opening and closing of the upper plates, and each vessel will be fitted with four 2 pounder guns and two machine guns.

The machinery consists of two Sterling eight cylinder gasolene engines to run at 1,200 r.p.m. and a Petter's electric generating plant supplies electricity for lighting and wireless.

Mr. Bailey expressed for his firm their pleasure in having built for the Canton Government these two further vessels for the enforcement of law and order, the protection of trade and of the industrious Chinese workers in their " right to work " and freedom from exploitation by any Government or section whatever.

Admiral Chan in reply said Messrs. W. S. Bailey & Co., Ltd., had, 20 years ago, built for his Navy the Gunboat Lungshan which had done and was still doing excellent service in shallow draft work, and he had great pleasure in complimenting this firm upon the two vessels just launched.

Admiral Chan stressed the necessity of such vessels in the suppression of piracy and disorder, and he felt that by building such vessels Hong Kong was assisting Canton to protect trade to their mutual advantage and thereby promoting good feeling between them.

Mr. Bailey acknowledging the toast paid a tribute to his excellent staff both European and Chinese, responsible for the succesful building of the vessels. Some of the Chinese No. 1's had been in his firm nearly 30 years and had assisted in building the river steamers Kwong Sai, Kwang Tung and many other old time vessels still running well.

# New Tugboat for Macao Government

On November 7, Messrs. W. S. Bailey handed over to the Macao Government the tug boat Berta. The new vessel is of steel 89 feet on keel, 18 feet 6 inches breadth and 8 feet 9 inches depth and built throughout to Lloyds requirements under supervision of the Government Naval Architect Mr. Joao Valente d'Almeida and Engineer Inspector Mr. Joao Batista Pinto de Sousa. The triple expansion engines of 320 Horse Power, working at 175 lbs. pressure, are those taken from the previous Berta now dismantled. The new vessel made an average speed on trials of 11.10 miles per hour.

The vessel is fitted with strong towing gear with slip hook and towing beam, the strain being taken amidships and there are also two strong towing posts at either bow, two each side amidships and one aft.

# The Foreign Policy of Nationalist China

*(Continued from page 536).*

It is understood that a similar treaty has been signed with the Danes, but the text has not yet been made public. And the British Minister signed a tariff treaty with Dr. Wang in which the general language of the Soong-MacMurray Treaty, was adhered to. It will be seen that the object of the Ministry of Foreign Affairs is to come to terms first with those Powers which have less at stake in China, to obtain from them a declaration of principle in conformity with China's national aspirations, but yet not to place them at a disadvantage as compared with the great Powers. The relations between the Ministry of Foreign Affairs of the Nationalist Government and Japan have been exceedingly intricate and have been productive of disturbances in the political and economic life of China. The Japanese have throughout the negotiations adopted a conciliatory and friendly attitude. The problems involved are numerous. There are the three incidents at Hankow, Nanking and Tsinan in which there was bloodshed and which require settlement. There is the broad question of the revision of the Commercial Treaty of 1896; there is the problem of the tariff and of the recognition and funding of unsecured and inadequately secured loans, amounting approximately to $600,000,000. These questions cannot be dealt with as one problem. There cannot be one treaty covering all of them. It is even difficult to discuss all of them at one conference or at one series of conferences. The Ministry of Foreign Affairs and the Ministry of Finance of the Nanking Government have, with great wisdom, adopted the policy of dealing with these problems *ad seriatum* and were on the verge of achieving a tremendous diplomatic victory for China which would have resulted in the withdrawal of Japanese troops from Tsinan and in the recognition by Japan of many of the principles of Chinese nationalism. This victory was prevented by mob violence, by the howling of young students and by the petty politics of scheming politicans, who would rather see their country suffering disgrace than permit a man whom they regard with disfavor to succeed in the work of his office, with the result that there is to-day an impasse in the relations of China and Japan, except on the one question of the revision of the tariff, the agreement with regard to which will undoubtedly be signed before the end of this month.

It is impossible in this article to discuss Sino-Russian relations which will have to be dealt with separately in detail, but the present recrudescence of Russian influence in the Kuomintang, particularly the Left Wing, has undoubtedly played a part in the viciously anti-Japanese attitude of the Nanking mob. The curious mob psychology of Peking has transferred itself to Nanking, that is, the mob of the capital attempts to exercise a dictatorial influence over all the Ministries of State, by mass meetings and demonstrations against Ministers, by actually breaking the windows and furniture of ministerial residences and by vicious attacks on individuals. Personal violence in the capital naturally involves a Minister more seriously and effectively than demonstrations in more distant cities and yet the mob of Nanking must not be regarded as responsible public opinion in China because, after all, it consists largely of hooligans and irresponsible schoolboys of one city and, from the standpoint of actual population, of one small city.

The present writer has had very little to say in favor of Dr. C. T. Wang since he assumed office as Minister of Foreign Affairs. His outlook on the problem was that in view of the constant danger of recurring civil war in China, it would have been wiser to delay the consideration of international problems until China's internal reconstruction had taken place, and his viewpoint on this subject has not changed, but it is easy to understand how Dr. Wang, as a Chinese and as the reponsible representative of Chinese nationalism, would seek to make the best bargain he could with the foreign Powers under any circumstances. That he has achieved as much as the above quoted treaties would indicate ought to be regarded by the Chinese people with gratitude and thanksgiving. A more violent and aggressive policy than he has followed would have resulted in a total failure.

Panoramic View of China Portland Cement Work

# Cement in the Far East

### *By Boris P. Torgasheff*

**Sometime Lecturer of the Peking National University**

COMPARATIVELY recently, until the very last pre-war years, the Far East had only one country which could export cement to adjoining countries, namely, Japan proper. All the other countries were forced to import cement from Japan, United States and Europe. From the latter continent it was imported from Germany, Russia, Norway, Denmark, Switzerland, and others.

Due to the general change in economic conditions caused by the war this dependency upon foreign cement has diminished to a large degree, and it may now be said that the Far East is almost able to supply its own requirements, although as yet several Far Eastern countries are dependent upon import, but this takes no longer place from Japan alone. On the part of Indo-China, Hongkong, Macao, and, it is believed, very soon also the Philippine Islands, Japan will meet with rather strong competition in the matter of supplying China and certain other countries with cement.

In general, the Far East as a whole may be characterized as being very rich in raw materials from which to make excellent cement, and for this reason the present Far Eastern markets for foreign cement can hardly be regarded as permanent to any degree. A definite and firm demand for cement, where there are no local raw materials, comes only from the Dutch East Indies and Singapore. Besides, it is considered that no matter how rapidly the cement industry is developing at present in China, nevertheless, even if normal political conditions were re-established and even if energetic railway construction work were again undertaken, sufficient capital could not be found for the construction of sufficient number of cement factories, and the country would again be compelled to increase its import of cement. This, however, is merely a supposition which may not be confirmed in reality.

Inasmuch as the production of cement cannot be determined from official statistics for all Far Eastern countries, and many small factories entirely escape the notice of statisticians, it is very difficult to obtain exact data relative to the cement industry in the Far East as a whole. Relative to certain countries it was possible to obtain official details, relative to others again it was necessary to be satisfied with only limited information gathered from the public press and from various private reports and other sources.

In our attempt to summarize all of the available data concerning the cement industry in the Far East, the following tentative table may be presented :

TABLE 1.—CEMENT PRODUCTION IN THE FAR EAST.

| Countries | Bbls of 376 lbs. | Value in U.S.$. | Remarks. |
|---|---|---|---|
| Japan proper .. | 21,052,000 | 63,156,000 | 1927.—Japanese official statistics. Value : Y.6.00 per barrel. |
| China proper .. | 6,285,000 | 18,855,000 | 1927.—Our own estimate explained in the text. Value G.$3 per barrel. |
| Hongkong .. | 900,000 | 2,700,000 | 1925. — Hongkong Statistical Handbook. Value : Hg.$6.00 per barrel. |
| Manchuria .. | 900,000 | 2,700,000 | 1927. — Summarized information of S. M. Ry. & C. E. Ry. Value : Y.6.00 per b. |
| Indo-China .. | 900,000 | 2,700,000 | 1926.—Official data of the Service der Mines de l'Indo-chine. 6 piastres per bbls. |
| Korea .. .. | 500,000 | 1,500,000 | 1926.—Japanese official data for Onodo Cement factory at Heijo alone. 6 Yen p. b. |
| Formosa .. | 300,000 | 900,000 | 1925.—Japanese estimates. |
| Russian Far East | 300,000 | 900,000 | Normal production, Present production owing to the reconstruction of the factory: over 65,000 barrels. |
| Macao .. .. | 300,000 | 900,000 | 1925.—Official approximate estimate. |
| Philippines .. | 283,167 | 849,489 | 1925—Official estimate of the Philippine Mining Bureau. |
| Total .. .. | 31,720,167 | 95,160,489* | |

*Not all value figure having been available for the Far East, for purpose of uniformity, we have used the Japanese official valuation of Yen 6.00 per bbl., or U.S.$3.00 in round figure, which is very close to the cement valuation in other Far Eastern countries.

This represents just eight per cent. of the entire world's production of cement, which in 1927 amounted to 396,541,730 barrels of 376 lbs.

The figures covering the world's production of cement found in various handbooks are largely diminished, inasmuch as a limited number of countries are usually taken into consideration. The most complete effort at obtaining an approximate world's figure is found in the Summary International Statistics of the British Imperial institute, according to which the world's production of cement in 1927 almost approached 400,000,000 barrels, of which amount over fifty per cent. of production fell on the lot of the United States, where in 1927 it manufactured 213,000,000 barrels of cement.

It is very characteristic that the United States which not so long ago was a large exporter of cement, within the past three-years period, 1923-1925, met with such large home consumption that there was hardly anything left for export. Prior to the war large exporters of cement were England, Belgium and Germany, but, taking advantage of the war, England at one time practically monopolized the entire European market, and only recently Belgium and France, as well as Germany, have begun to resume large export operations. The majority of European countries, now as formerly, are forced to have recourse to importation of cement. Russia prior to the war produced up to 4,000,000 barrels of cement annually. The United States have been these years steadily increasing its export of cement to the Far East, the bulk going to the Philippines and a minor part to China, but the European supplies of cements to the Far East have never been of any significance.

At the present time the amount of cement produced in the Far East is about sufficient to supply the demand of the Far Eastern countries, but only owing to the rapid development of the modern cement industry in Japan proper. Until recently, the major part of the Far Eastern countries have been using for private homes and public buildings ordinary lime mortar. At the present time, there is everywhere in the Far East a growing demand for modern Portland cement for buildings, various industrial constructions and railways. Everything points out that there is in the Far East a remunerative field a large number of modern cement plants in addition to those already in operation. How great potentially is the Far Eastern cement market, it may be seen from the comparison of the per capita cement consumption rate in the United States, in Japan proper, and in the other countries of the Far East.

In the United States the per capita consumption of cement, according to the official data of the U.S. Geological Survey, amounted as in 1925 as well as in 1927 to 450 lbs, or about 1.2 barrels per year, while the average per capita rate for the whole of the Far East is 19 lbs only, and for China as low as 6.0 lbs per capita per annum. It is only a few years ago that Foster Bain estimated the per capita consumption of cement in Japan at 85 lbs, but according to the Japanese official statistics we find the 1927 rate already increased up to 131.6 lbs. as it may be shown by the following table :

TABLE 2.—CEMENT CONSUMPTION IN THE FAR EAST.

| Countries | Consumption in bbls. | Per capital in lbs. |
|---|---|---|
| Japan proper .. .. .. | 19,579,000 | 131.6 |
| China proper .. .. .. .. | 7,170,000 | 6.0 |
| Manchuria .. .. .. .. | 520,000 | 9.8 |
| Philippines .. .. .. .. | 400,000 | 15.0 |
| Russian F. E... .. .. .. | 300,000 | 68.3 |
| Hongkong .. .. .. .. | 300,000 | — |
| Korea .. .. .. .. .. | 300,000 | 7.5 |
| Indo-China .. .. .. .. | 300,000 | 6.0 |
| Macao .. .. .. .. | 200,000 | — |
| Formosa .. .. .. .. | 60,000 | 6.0 |
| Total .. .. .. .. | 29,129,000 | 18.8 |
| United States.. .. .. .. | | 450.0 |

Note—the average per capita consumption of cement in the Far East is still only one-thirtieth part of that in the United States.

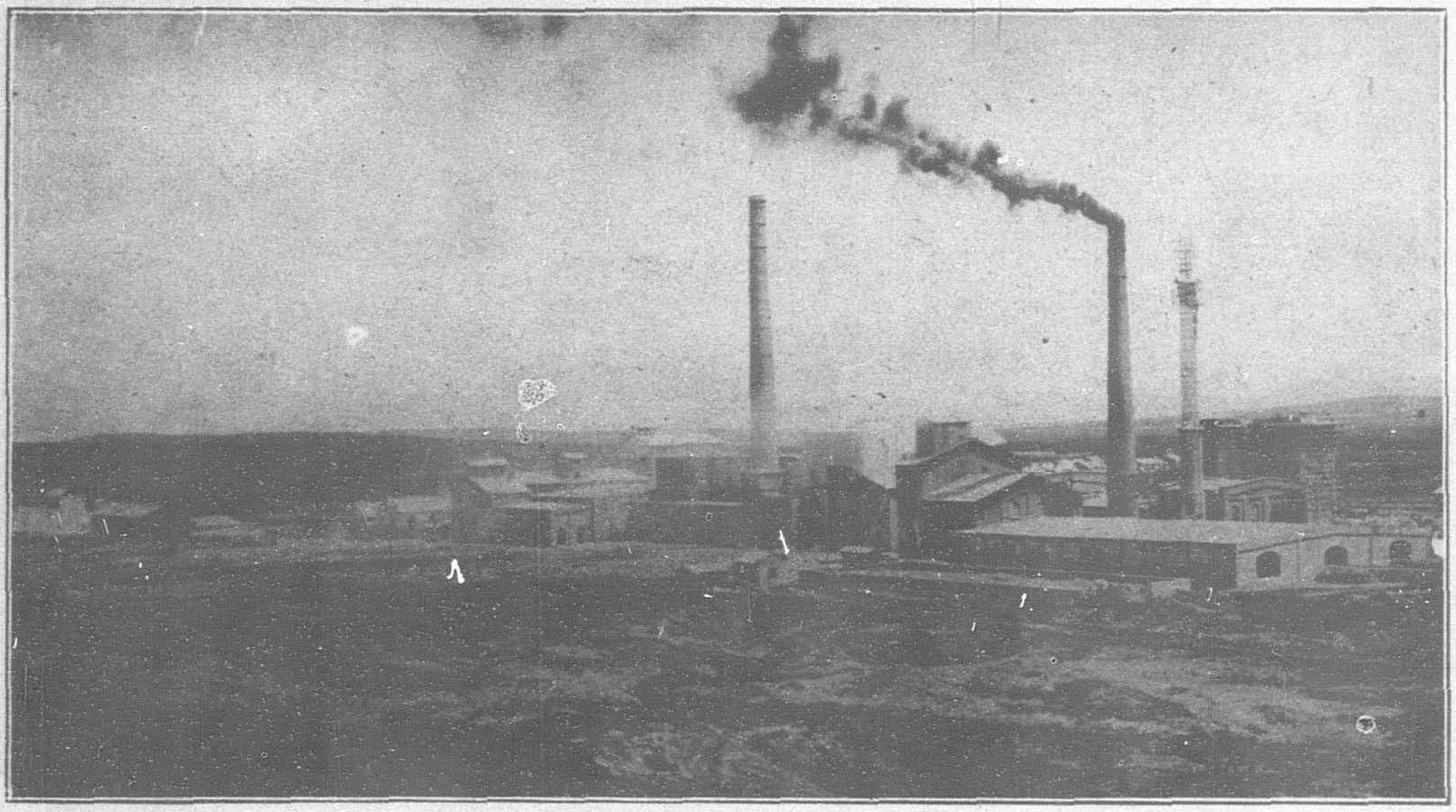
With the production of 31,720,167 barrels and the consumption of 29,129,000 barrels the Far East gives the surplus of production of 2,791,167 barrels, which are sold, practically only by Japan and Indo-China to the Dutch East Indies, Singapore, British India, and incidentally even to Brazil and Peru.

## Japan Proper

Japan undoubtedly possesses in abundance all the necessary raw materials for the manufacture of artificial Portland cement, and at the present time the country is the largest producer of cement in the Far East.

Besides abundance of materials for the manufacture of artificial cement the existence in Japan of so-called natural cement is also known. This is a certain variety of marble or lime clay, which is easily transformed into cement by simple heating. In order to obtain the better kinds of cement from the natural cement it is necessary to add a certain quantity of clay and lime.

The majority of cement factories in Japan are located in the Kiushu and Kuansai Islands. The principal factories, equipped



The Onoda Cement Plant at Choushuitzu, Near Dairen

according to the latest inventions, belong to the Asano and Onoda companies, with a large number of others, as for instance :

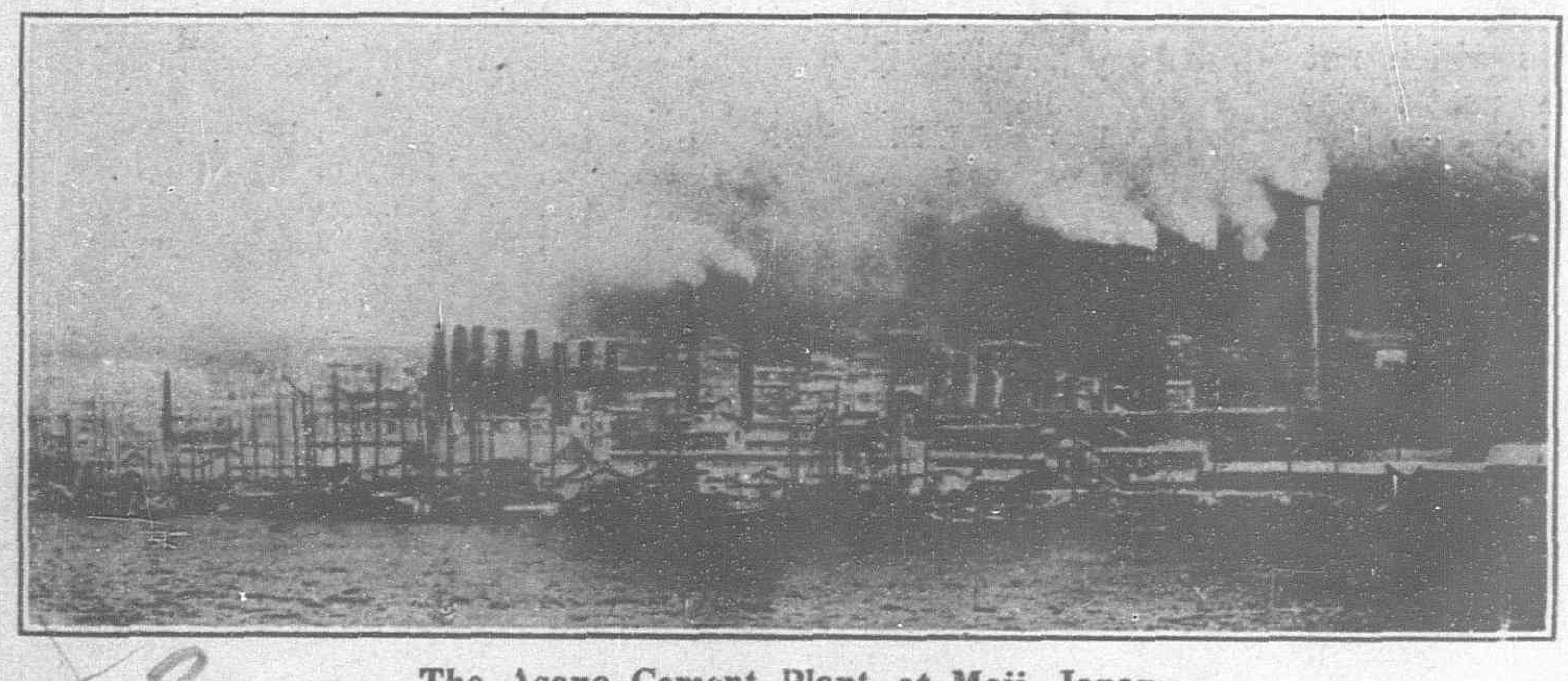
1.—Asano Cement Kabushiki Kaisha. Works at Tokyo, Moji, Hokkaido, Kawasaki and Taiwan. Capital : Y.30,000,000. Manufactures annually up to 7,500,000 barrels.

2.—Onoda Cement Seizo Kabushiki Kaisha. Works in Japan proper, Korea and Dairen. Capital : Y.7,500,000. Average output 1,200,000 barrels a year.

3.—Oita Cement Kabushiki Kaisha. Works at Tsukumi, Oita. Capital : Y.3,000,000. Annual output over 600,000 barrels.

4.—Tosa Cement Kabushiki Kaisha. Works at Tosa, Kochi prefecture. Capital : Y.2,000,000. Average output 600,000 barrels.

5.—Iwaki Cement Kabushiki Kaisha. Works in the Fukushima prefecture. Capital : Y.3,000,000. Average production 400,000 barrels a year.



3

The Asano Cement Plant at Moji, Japan

6.—Aichi Cement Kabushiki Kaisha. Works at Nagoya. Capital : Y.3,000,000. Production averages yearly : 240,000 barrels.

7.—Nagoya Cement Kabushiki Kaisha. Works at Osaka. Capital : Y.2,000,000. Annual output over 200,000 barrels.

8.—Mikawa Cement Kabushiki Kaisha. Works at Toyoshima. Capital : Y.500,000. Annual production over 75,000 barrels.

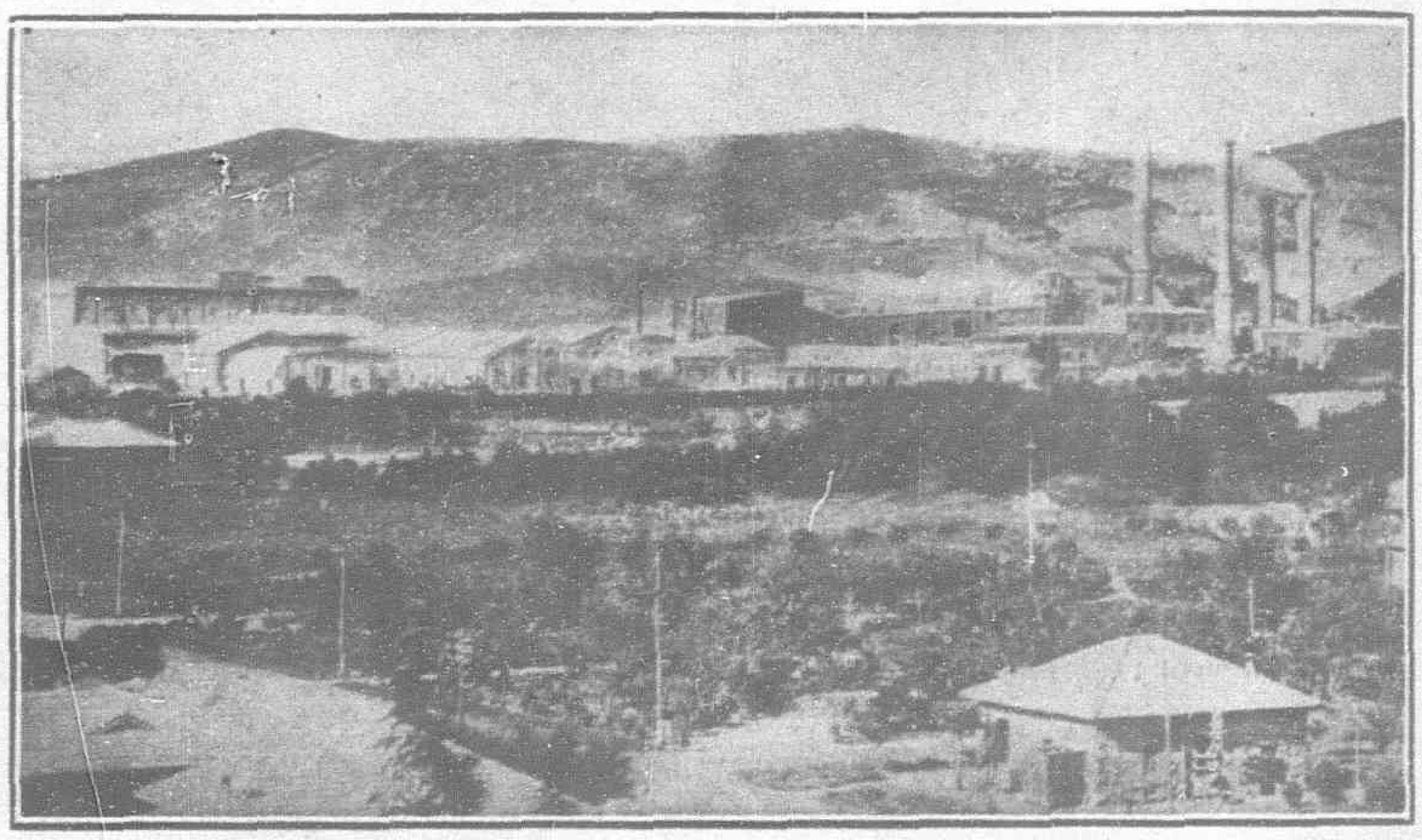
Altogether, there are in Japan 16 cement companies belonging to the Japan Cement Association, and a number of lesser cement works. The members of the Association made in 1927 the average profit of 10.6 per cent.

The total production of cement in Japan proper has progressed, according to the official statistics, as follows :

TABLE 3.—CEMENT PRODUCTION IN JAPAN PROPER.

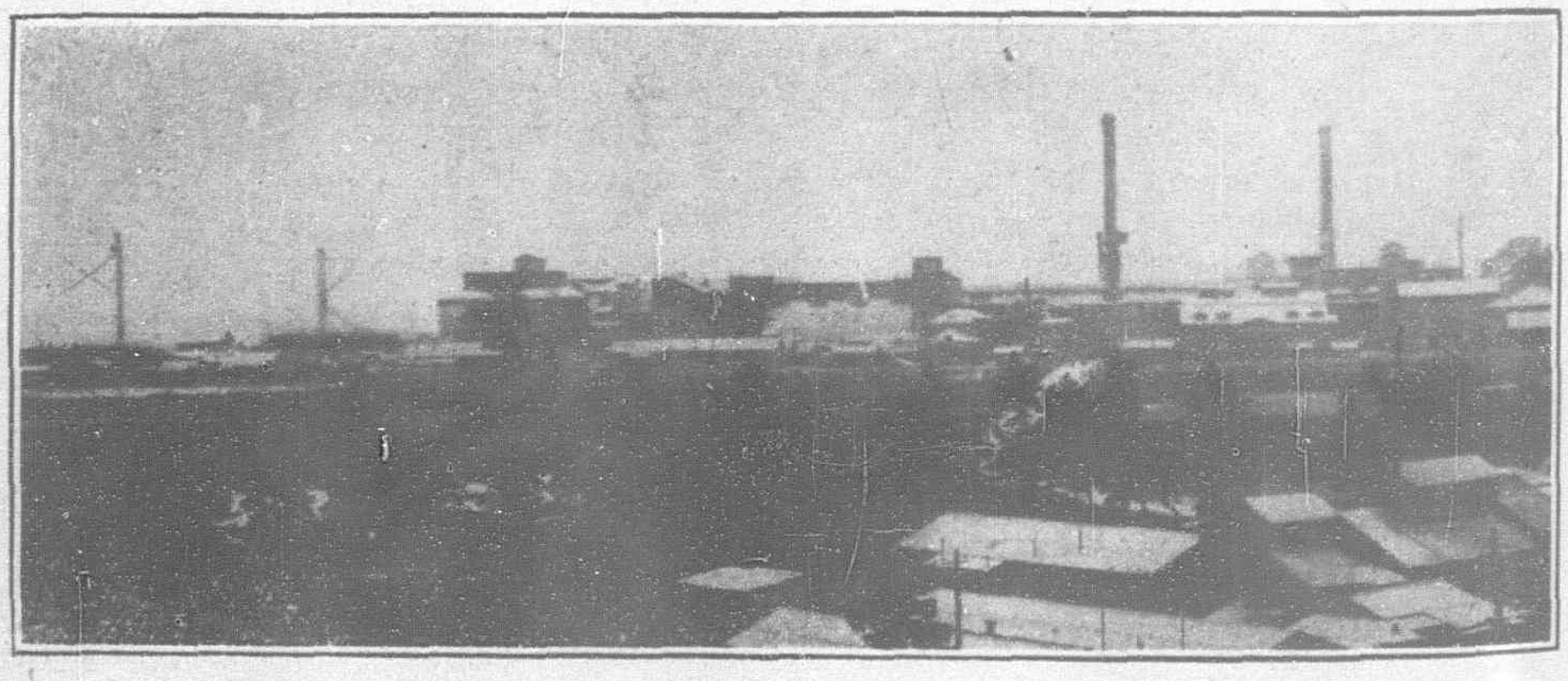
| Years | Barrels of 376 lbs. | Years | Barrels of 376 lbs. |
|---|---|---|---|
| 1908 .. | 1,750,000 | 1921 .. | 10,000,000 |
| 1914 .. | 3,625,000 | 1922 .. | 11,200,000 |
| 1919 .. | 6,500,000 | 1926 .. | 18,405,000 |
| 1920 .. | 9,300,000 | 1927 .. | 21,052,000 |

In view of the large and constantly growing requirements for cement in Japan itself, the export of cement is of secondary importance only, and fluctuates between 1,500,000 and 2,000,000 barrels annually. The principal market for Japanese cement is China, to which in 1927, for instance, were exported more than 570,600 barrels/1,597,690 piculs. To the Philippine Islands Japan has until the very last years exported annually approximately 200,000 barrels, but this export has now necessarily been limited in view of the developed home production of cement in the Philippines and the practically prohibitive import duty introduced Japan ships up to 120,000 barrels annually to Java in the Dutch. East Indies where it developed a steady market for Japanese cement. In 1925, for instance, Japan exported to the Dutch East Indies a quantity of cement valued Y.1,578,000. Besides, smaller quantities of cement go from Japan to Australia, British India, and there have been cases of shipments to Brazil and Peru.

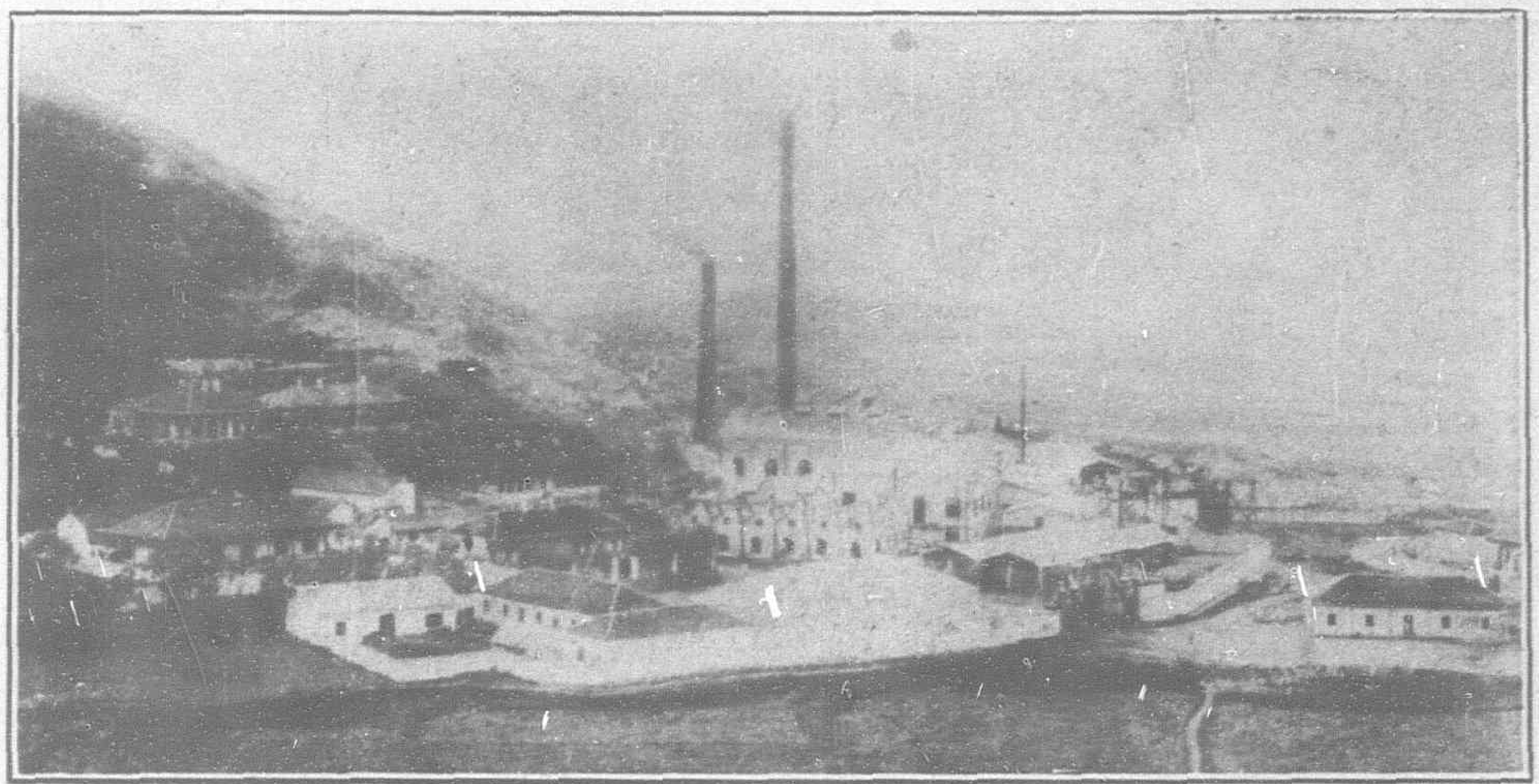


Onoda Cement Plant at Heijo, Korea

The importation of cement into Japan proper is very insignificant and is limited to the importation from China of approximately 25,000 barrels



The Plant of the Asano Cement Company at Kawasaki, Near Tokyo



The Hwa Kee Hupeh Cement Works at Hwangshihkang

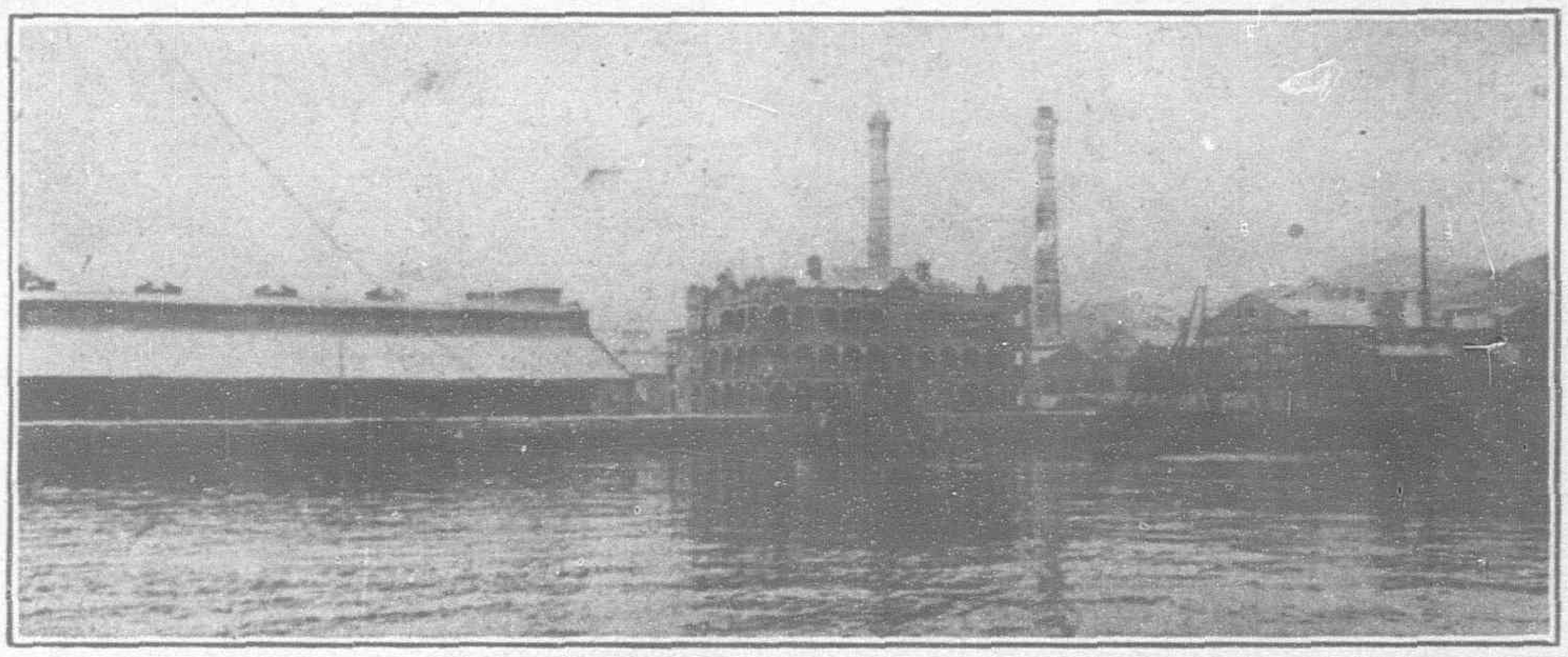
of the better kinds, and 600 to 2,500 barrels from Dairen from the Onodo Cement factory there, so that the maximum amount may be stated as 27,000 barrels annually.

Thus, if we take the average export at 1,500,000 barrels and the import at 27,000 barrels, while the total production according to the latest data is 21,052,000 barrels, we may consider that the home consumption of cement in Japan proper *is equal to* 19,579,000 *barrels annually* or 131.6 (lbs, 50.35 bbls) per capita per annum.

The most considerable increase in production of cement was observed in 1925 and 1926, during which period the demand for cement grew to 25 per cent. The chief buyers of cement in Japan are the two towns much affected by the earthquake—Tokyo and Yokohama.

The production cost of cement, according to data of 1924, is figured at Y.4.70 to Y.4.80 per barrel, and while prices at times have dropped below this level the average market price for Japanese cement at home in 1924 and 1925 fluctuated between Y.5.50 nad Y.6.00 per barrel.

## China Proper



Green Island Cement Plant, Near Macao

China, in even greater degree than Japan, possesses all necessary raw materials for the manufacture of excellent Portland cement. The home production of cement in China began comparatively recently, but it evidences every indication of rapid and firm development. At the present time the rapidly growing demand for cement cannot be met with the domestic production, and regular import of cement is being made from Japan proper and Indo-China.

"There has been a very remarkable increase in demand for cement," testifies the Capital & Trade, July 6, 1928, "within the last few years in the desire to modernize the large Chinese cities by tearing down the walls of buildings and constructing wide modern streets on the sites, built so that they will bear automobile traffic. Cement is used to a considerable extent in this work. Port development projects are already under way and new ones are planned. New railroad construction is now going on, and with the impetus already given industrial development in China other new railway lines and industrial plants of various kinds will be under construction within a few years. This means an increase demand for cement, and even today the Chinese supply is much below the normal demand."

Of the China's cement works we may mention here as principal the following:

1.—The Chee Hsin Cement Co. Works at Tangshan, Chihli, near Tientsin. Capital authorized: $7,000,000. Paid up: $6,363,000. Annual output—2,200,000 barrels 1926.

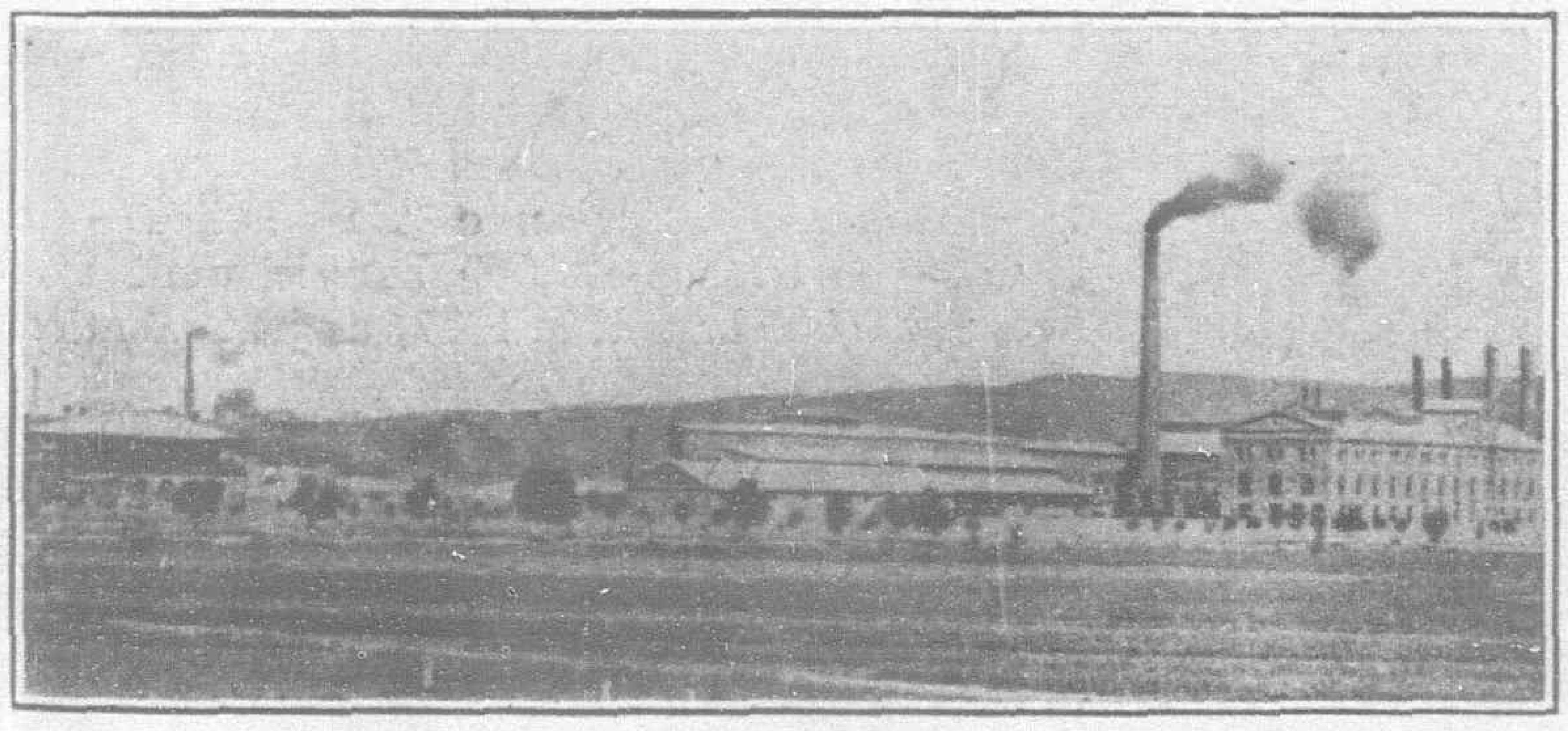
2.—The Shanghai Portland Cement Co. Works at Shanghai, 1 mile from Lunghua. Capital: $2,000,000. Daily output: 1,200 barrels. Annual output: 438,000 barrels. Modern equipment costs over one-half million dollars.

3.—The China Portland Cement Co., known also as *The Lungtan Cement Works.* Located at Lungtan, a town on the Shanghai-Nanking Railway, near Nanking. The Head Office at Shanghai. Produces highest standard cement. Capital: $1,000,000. A new German plant has just been erected, and the daily output will be brought up to 2,500 bbls, or 912,500 barrels per year. Until reconstruction, the works produced 960 barrels daily.

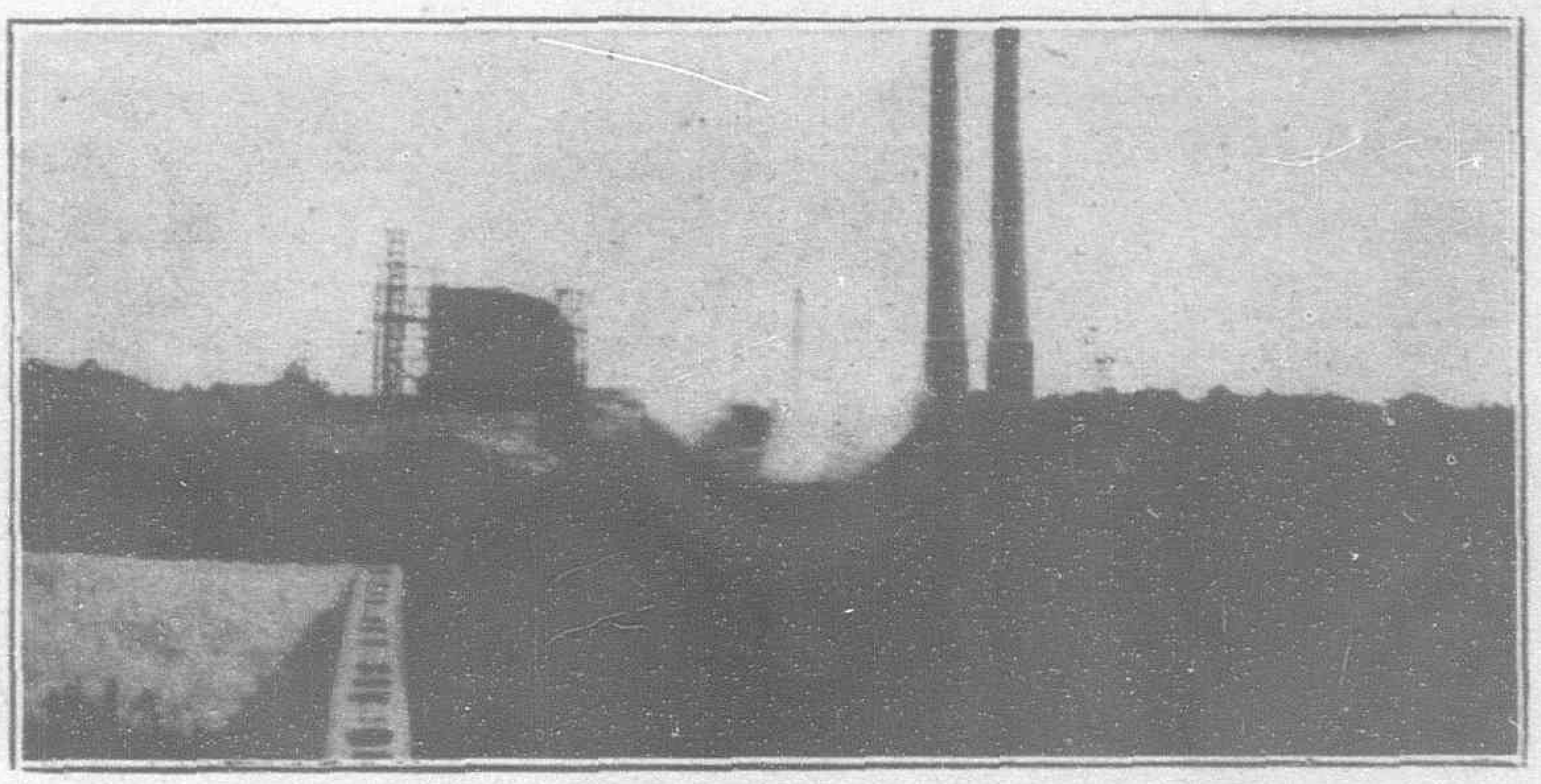
4.—The Kwangtung Government Cement Works. Situated on Honam Island, at Canton. Daily capacity registered in 1923: 550 barrels or 200,750 barrels annually. Selling price: $6.20—$6.80 per bbl. According to the recent rada, annual output reached 220,000 bbls.

5.—Ta Hu Cement Co. Works at Wusih, Kiangsu province. Capital: $2,000,000. Annual output: 730,000 barrels/ 2,000 daily.

6.—The Shantung Portland Cement Co. At Tsingtao. Japanese owned. Capital: Yen 1,000,000. Monthly capacity: 20,000 bbls. Annual output: 240,000 barrels.



The Chee Hsin Cement Works at Tangshan, North China



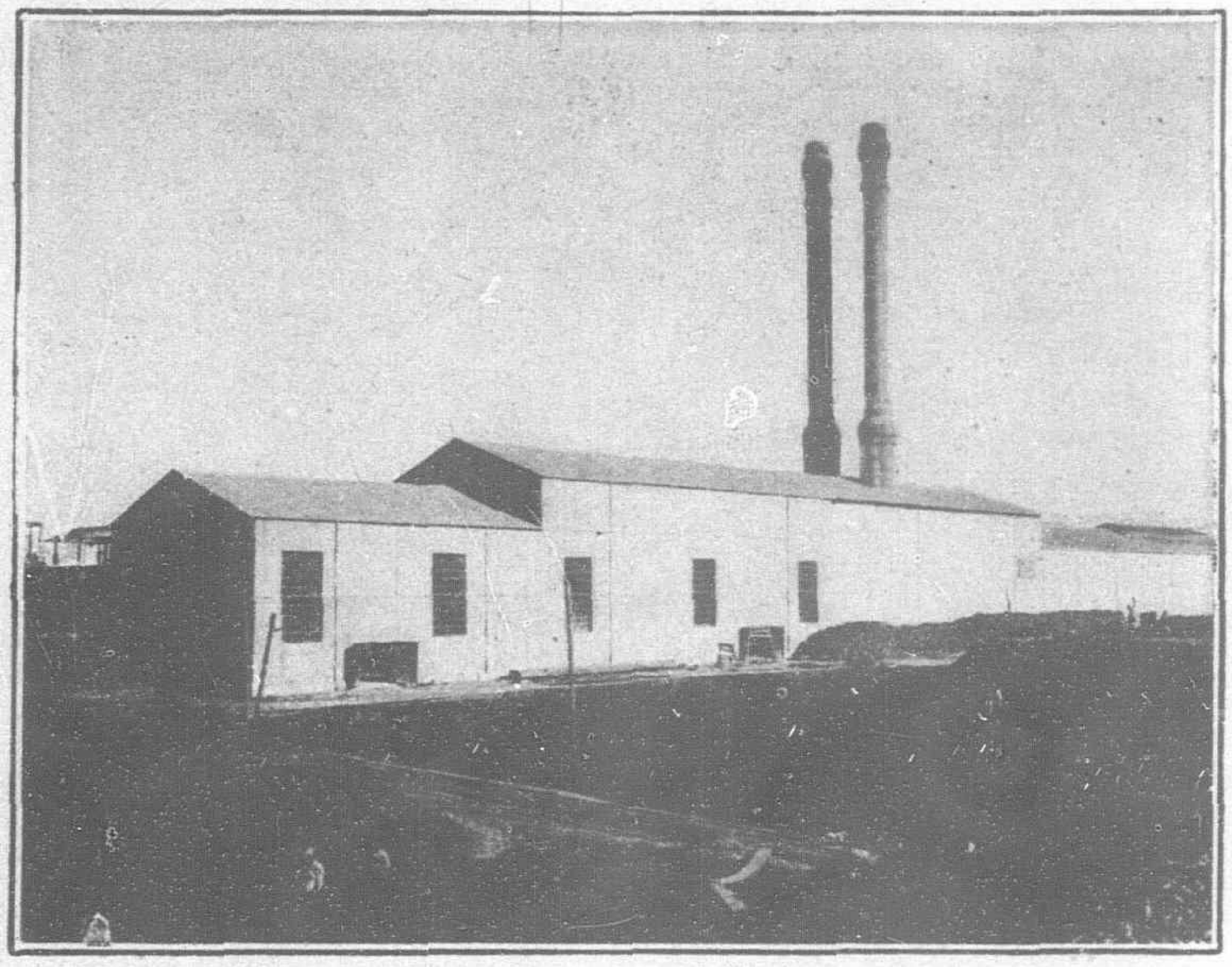
Ta Hu Cement Works at Wusih

7.—Tsinan Cement Co. Works at Tsinanfu, Shantung, Capital: 200,000. Daily output 250 bbls, or 91,250 barrels a year.

8.—Liu Ho Kou Cement Works. Located at Fenglochen, Honan province. Daily output over 1,000 barrels of Portland cement. Annually: 365,000 barrels.

9.—Hwa Kee Hupeh Cement Works. Situated at Tayeh, Hupeh province. Capital: $1,023,340. Daily output: 1,200 barrels, or annually: 438,000 barrels.

10.—The China Cement Manufacturing Co. Works at Tiger Hill at Lungtan, near Nanking. Head Office in Shanghai. Capital: Tls. 500,000. New erected plant, ready to begin operation, with daily capacity: 400 barrels, or about 150,000 barrels per year.



**Lunghua Cement Works, Near Shanghai**

The total aggregate producing capacity of the above-mentioned ten largest cement works in China proper amounts up to about 5,784,000 barrels a year, as it may be seen from the following table:

TABLE 4.—PRINCIPAL CEMENT WORKS IN CHINA PROPER.

| | Name of works | Output in barrels | |
|---|---|---|---|
| | | Daily | Annually |
| 1. | Chee Hsin Cement Co. | 6,030 | 2,200,000 |
| 2. | Shanghai Portland Cement Co. | 1,200 | 438,000 |
| 3. | China Portland Cement Co. | 2,500 | 912,500 |
| 4. | China Cement Mng. Co. | 400 | 150,000 |
| 5. | Kwantung Government Cement Work | 600 | 220,000 |
| 6. | Ta Hu Cement Co. | 2,000 | 730,000 |
| 7. | Shantung Portland Cement Co. | 660 | 240,000 |
| 8. | Tsinan Cement Co. | 250 | 91,250 |
| 9. | Liu Ho Kou Cement Works | 1,000 | 365,000 |
| 10. | Hwa Kee Hupeh Cement Works | 1,200 | 438,000 |
| | Total | 15,840 | 5,784,750 |

The largest cement factory in China, The Chee Hsin Cement Co. at Tangshan, Chihli, according to the figures of this firm for 1926, has brought its production by 1926 up to 2,200,000 barrels, against 1,095,000 barrels in 1923. In addition to the ten above mentioned principal cement works in China proper, there are a number of other large and small factories in Hankow, Taonanfu, etc. producing, at a very conservative estimate, not less than 500,000 barrels, so that the total annual production of cement in China proper must be considered to amount to 6,285,000 barrels. However, it must be taken into consideration that this figure does not include the cement output of Manchuria, which gives an additional aggregate of 800,000 barrels, so that the total domestic cement production of entire China may be taken at about 7,000,000 barrels a year.

This quantity of cement is insufficient for the requirements of domestic consumption in China, and there are imported annually approximately 900,000 barrels of cement, principally from Japan proper, Korea, Indo-China, Hongkong, Macao, and in small quantities even from Europe. Prior to the war considerable quantities of cement were shipped to China from Germany, but after the war this import was not resumed in any significant quantities. The principal movements of import of cement into China may be seen from the table below, indicating the average figures of the importation of cement during the four-year period from 1920-1923, and the latest available statistics for 1926, computed on the basis of official data of the Chinese Maritime Customs:

TABLE 5.—IMPORTS OF CEMENT INTO CHINA.

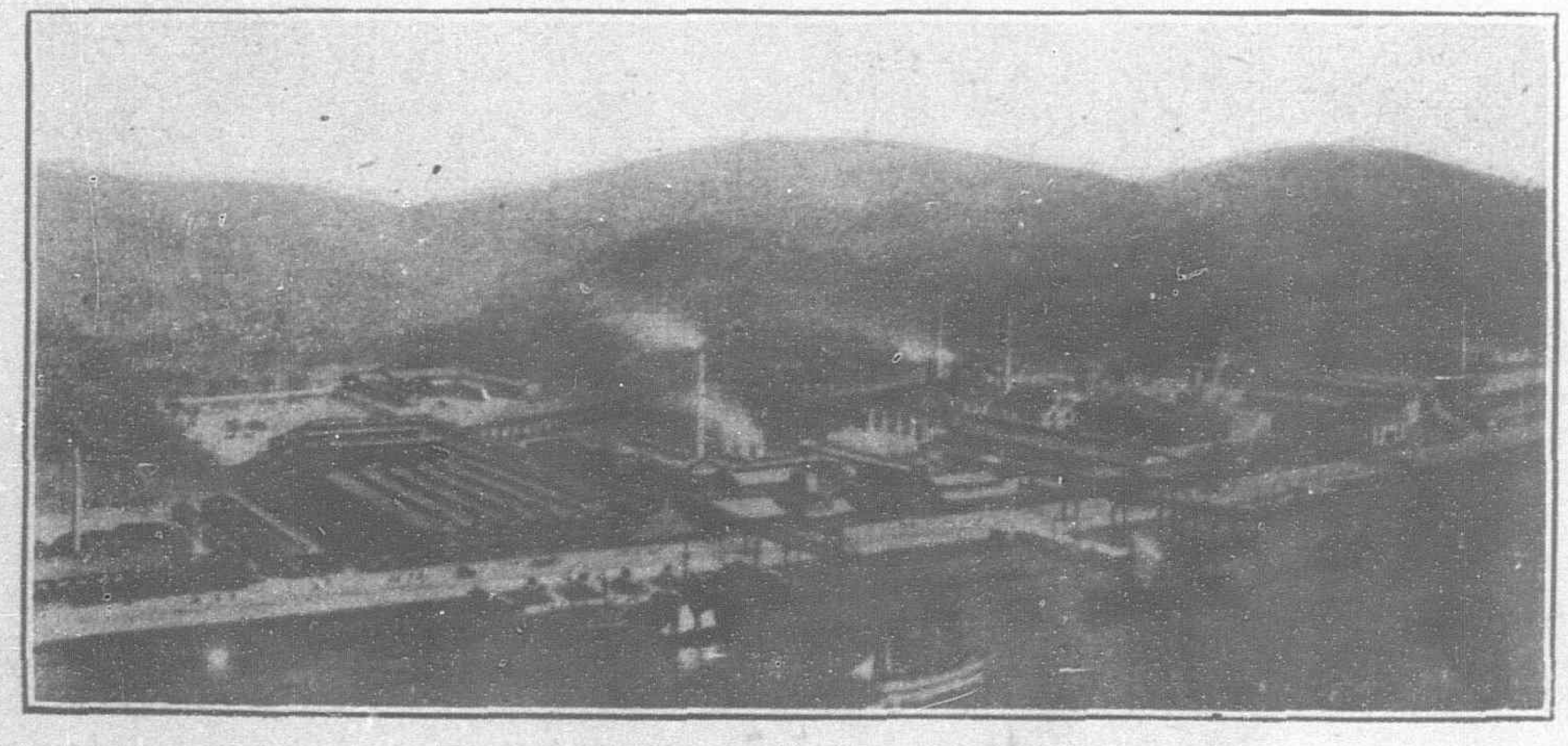
| Imported from | Average for 1920-23 In bbls. | 1926 Barrels of 376 lb. | 1926 Value in Hk. Tls. |
|---|---|---|---|
| Japan and Formosa | 335,000 | 570,603 | 1,610,697 |
| Indo-China | 165,000 | 130,168 | 349,420 |
| Hongkong | 200,000 | 82,540 | 226,026 |
| Macao | 100,000 | 10,093 | 28,260 |
| Korea | 50,000 | 58,183 | 166,509 |
| United States | 1,500 | 2,055 | 20,191 |
| Russian Pacific Ports | 1,500 | 1,812 | 6,792 |
| Italy | 45,000 | — | — |
| Germany | — | 2,155 | 6,047 |
| Great Britain | — | 1,205 | 7,081 |
| Siam and Straits | — | 2,773 | 8,453 |
| France | — | 742 | 3,509 |
| Total including others | 900,000 | 856,317 | 2,436,941 |

The principal consuming centers in China of imported cement are Canton, Shanghai, Tientsin, Lappa, Swatow and Amoy.

The export of cement from China is limited to the highest grades only, amounting to a total of up to 40,000 barrels per year, of which 25,000 barrels go to Japan proper and approximately 15,000 barrels to Hongkong.

Thus, if we place average import of cement into China at 900,000 barrels, up to which amount it is estimated to have been increased in 1927, the import from Dairen at 25,000 barrels, the export at 40,000 barrels, and the home production at 6,285,000 barrels, we arrive at an approximate consumption figure of cement in China proper at 7,170,000 barrels a year, or 6.0 lbs (0.016 bbls) per capita.

Unlike many other industry, the cement industry of China has been prospering even during the past three years of continued fighting in the country and the crucial state of the provincial finance. In a number of ports of South and North China construction work has been going on, ever-increasing quantities of cement had been in demand for town-rebuilding, road-construction plans for military purposes, and for needs of a large number of cities engaged in street-widening schemes. All this resulted in the fact that China's demand for cement, estimated in 1924 by the Government Bureau of Economic Information to be over 4,000,000 barrels, went up to over 7,000,000 barrels in 1927, as just mentioned above.



**The Tosa Cement Works at Kochi, Japan**

The Geological Survey of China, in 1924, figured the average manufacturing cost of cement produced in China at Hk. Tls 2.20, U.S. $1.76 per barrel, while the market price for better grades of cement reaches up to U.S. $3.00 per bbl. Indo-Chinese cement, for which there is constant demand in Shanghai and in Canton, cost delivered at Shanghai in Sh. Tls 3.65, or U.S. $2.92. per barrel. According to the import statistics given above for 1926, the per barrel price of imported cement averaged Kk. Tls. 2.84, or about U.S. $2.30. Such a low price of imported cement is considered to be very detrimental to the development of the home cement industry, and the Chinese Tariff Commission of the National Government has just recently proposed that in the new Chinese tariff the import duty on cement should be raised to 85 per cent. advalorem, instead of existing 10 per cent. for the reason that at the present time Japanese cement is sold in China at much lower prices than obtaining in Japan.

### Manchuria

North as well as South Manchuria have in abundance all the materials required for the manufacture of cement, but at present it is manufactured only in South Manchuria under Japanese control.

The principal manufacturing center for cement in Manchuria is in the neighborhood of Dairen, where is located the excellently equipped cement works of The Onodo Cement Seizo Kabushiki Kaisha, producing at present up to 750,000 barrels annually (official figure for 1926,) but being able almost to double this production. Capital of the Dairen Onodo Cement works is Y.7,000,000 of which Y.4,575,000 have already been paid up. Also at Dairen is located another Japanese cement plant The Manchu Cement Kabushiki Kaisha, with capital of Y.3,000,000, and annual production of about 100,000 barrels. Besides these two factories the Japanese have within the last few years constructed in South Manchuria also two or three smaller factories, the capacity of which we have not been able to ascertain. With an indirect Japanese control there is a Chinese cement works at Liaoyang, Fengtien, named: Chiang Hua Cement Co, with authorized capital of Mex. $1,000,000. Taking all this into consideration, as the Chiang Hua works alone produce over 50,000 barrels a year, we may safely estimate the aggregate cement production of South Manchuria at not less than 900,000 barrels a year.

In addition to the above, Manchuria imports annually through the ports of Dairen, Yingkow and Antung up to 200,000 barrels of cement from Japan proper, China and Korea. According to the Customs figures for 1923, almost 195,000 barrels arrived through Dairen from Japan. From China *via* Dairen and Yingkow were received up to approximately 20,000 barrels, while the balance of 5,000 barrels was received from Korea.

The export from South Manchuria is limited to the export of cement from the Onodo Cement Works, at Dairen, reaching, according to average data of that factory for 1926, up to 600,000-650,000 barrels per year, exported mostly to North Manchuria, China, Hongkong, Singapore, the Dutch East Indies, and even to Hawaii.

These figures: the domestic production in Manchuria of 900,000 barrels, the total import of 220,000 barrels, and the total export of 600,000—650,000 barrels, give the total consumption of cement in South and North Manchuria of 470,000—520,000 barrels annually, or 0.26 bbls (9.8 bls) per capita.

The major portion of this cement is used in South Manchuria: up to 430,000 barrels, while, according to the statistics of the Chinese Maritime Customs and amounts carried on the Chinese Eastern Railway, the aggregate consumption of cement in North Manchuria varied between 30,000 and 45,000 barrels annually. Of this quantity the Chinese Eastern Railway requires yearly not less than 10,000 barrels, up to the present time being received from the Dairen Onodo factory. Prior to and during the war North Manchuria received Russian cement from Novorossisk, a Black Sea port, of which there were imported from 10,000 to 15,000 barrels annually. Quite recently—1925—the Railway has made efforts partially to resume this import, and also to commence to buy the Chinese cement from Tientsin to replace the Japanese product. However, nothing has as yet been done to come to more proper solution: to erect a cement factory somewhere near Harbin, although the neighborhoods of this town abounds in excellent raw materials for manufacturing cement. One of the richest districts in this respect, that of the Ashiho station is only 30-40 kms. distant from Harbin.

The Dairen Onodo Cement Works in 1924-1925 sold cement f.o.b. cars at the factory at Y.6.00 per barrel (production cost Y.4.00 per barrel of 376 lbs, of which Y.2.00 is the cost of the wooden empty barrel). Delivered Harbin the Onodo cement have been usually sold there at Gold Rbls 8.40 (U.S. $4.20) per barrel. It is evident that such high cost of cement in North Manchuria entirely justifies the necessity to erect there at least a cement plant.

### Indo-China

In Indo-China the cement industry is of very recent beginning, but it promises great future development because of the abundance of cheap and excellent raw materials for the manufacture of cement, which is found close to railway and coal. Besides home consumption, there is already a constantly increasing demand for Indo-Chinese cement for abroad.

At Haiphong there is a modernly equipped large cement works, "Société des Ciments Portland Artificiels de l'Indo-chine," reconstructed in 1923, which, in addition to taking care of local requirements, exported within the past few years to France alone 60,000 metric tons, *i.e.* 351,702 barrels of cement annually. It is known, however, that in addition within recent years there were annually exported to China 165,000 barrels, as during the period 1920-23, and 130,168 barrels were registered as entered into China from Indo-China, in 1926. From 80,000 to 100,000 barrels of cement are yearly sold by Indo-China for the Philippines. A certain quantity of Indo-Chinese cement is exported to Hongkong, where it is now an important factor in the market.

Thus, the total exportation of cement from Indo-China can by no means be less than 600,000 barrels annually. Without definite data on hand covering domestic consumption, but estimating the same to be of no less per capita rate than in China (6.0 lbs), we may take it at not less than 300,000 barrels, which assumption brings us at the figure of the aggregate production of cement in Indo-China of 900,000 barrels annually.

### The Philippine Islands

Up to 1923 the Philippine Islands used exclusively imported Japanese cement, although small cement factories were in operation there since 1914. In 1923 began to operate the large, excellently equipped factory in the city of Naga, on Cebu Island, with a capacity of up to 5,000 barrels daily, or 1,825,000 barrels a year. Construction of that plant cost about G. $5,000,000, and at the present time this factory is able to take care almost of the entire home consumption. However, according to official data of the Philippine Bureau of Mines, the total home production of cement on the Philippine Islands in 1924 was 264,981 barrels, and in 1925 283,167 barrels, valued at 746,680 pesos, what means that the Naga Cement Works have as yet been operated to its full capacity.

In order to protect the new cement enterprise on Cebu, in 1923 there was introduced on the Philippine Islands an import duty of 32 gold dollar cents per barrel, which is almost prohibitive for Japanese import.

The consumption of cement, according to the same official statistics, varied during the period 1920-25 between 200,000 and 500,000 barrels. If we take the average figure, it may be estimated that the consumption of cement, on the average, in the Philippines is equal to 400,000 barrels, and it thus follows that they are forced to import annually up to 125,000 barrels, principally from Japan and to a lesser degree from Indo-China.

The production cost of cement on Cebu Island is figured very low; thus, for instance, in 1925, it was only 2.64 pesos per barrel, ex factory. In Manila, however, a barrel of cement was sold at from Pesos 5.60 to Pesos T.90, as against Pesos 7.60 for the imported Japanese cement.

### The Russian Far East

There is only one cement factory in the Russian Far East, namely that, which is situated at station Evgenievka, the Ussuri Railway. At the present time it resumed operation, and produced in the 1925-26 fiscal year 52,958 barrels of cement, valued at Rbls 416,048, according to the official figure of the Russian Far Eastern Statistical Board. If worked at its full capacity this cement works is capable to produce annually up to 300,000 barrels.

Recently cement requirements have been taken care by imported new Russian and certain quantities of Japanese cement. Inasmuch as the Russian Far East never has manufactured cement for export, this figure of 300,000 must also be regarded as the approximate quantity of cement consumption.